```
March 23, 2004, 18:27:09; Search time 46 Seconds (without alignments) 4492.705 Million cell updates/sec
                                                                                                                                                                                                                                         3352
1 MSSSNVEVFIPVSQGNTNGF......MIVIFLTIAYLKLLFLKKYS 655
                                                                                                                                                                                                                                                                                                                                                                                                                 1017041
GenCore version 5.1.6
Copyright (c) 1993 - 2004 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                     Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                          1017041 segs, 315518202 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                        OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                               Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                      US-09-961-086-1
                                                                                                                                                                                                                                                                                                            BLOSUM62
                                                                                                                                                                                                                      Title:
Perfect score:
                                                                                                                                                                                                                                                                                                            Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Database :
                                                                                                                                                                                                                                                                                                                                                                             Searched:
                                                                                                                                                                                                                                                                    Sequence:
                                                                                                                                Run on:
```

sp_rodent:*
sp_virus:*
sp_virus:*
sp_vertebrate:*
sp_unclassified:* SPTREMBL_25:*
1: sp_archea:*
2: sp_bacteria:*
3: sp_fungi:*
4: sp_human:*
5: sp_inven:*
6: sp_mammal:* sp_rvirus:*
sp_bacteriap:*
sp_archeap:* sp_phage:* sp_plant:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

		•			SUMMARIES	
Result No.	0		Length DB	DB	QI	Description
; rd	3346	99.8	655	4	Q96TA8	Q96ta8 homo sapien
.01	3342	99.7	655	4	Q81X16	Q8ix16 homo sapien
٣	3338	99.66	655	4	Q96LD6	Q961d6 homo sapien
4	2849.5	85.0	656	9	Q8MIB3	Q8mib3 sus scrofa
S	2762	82.4	657	11	Q7TMS5	Q7tms5 mus musculu
ø	2761	82.4	541	4	Q86V64	Q86v64 homo sapien
7	2757	82.2	657	11	Q9R004	O9r004 mus musculu
00	2754	82.2	657	11	Q80W57	Q80w57 rattus nor
σ	2752	82.1	657	11	Q80ST1	Q80stl rattus norv
10	2742	81.8	657	11	Q80XF3	Q80xf3 rattus nor
11	1787.5	53.3	650	11	QBBKIS	Q8bki5 mus musculu
12	847.5	25.3	801	ហ	Q8T691	Q8t691 dictyosteli
13	809	24.1	751	10	Q93YS4	Q93ys4 arabidopsis
14	808	24.1	687	Ŋ	Q9NH94	Q9nh94 bombyx mori
ıξ)	806	24.0	687	'n	Q94960	Q94960 drosophila
16	8008	23.9	737	10	Q9FT51	Q9ft51 arabidopsis

3>>>3

17 793 23.7 679 5 Q9BH97 183.5 23.4 648 10 Q9CGWS 20 777.5 23.4 648 10 Q9CGWS 20 777.5 23.2 648 10 Q9CGWS 20 777.5 23.2 648 10 Q9CGWS 20 774 23.1 646 10 Q9CGR7 20 774 23.1 646 10 Q9CGR7 20 767.5 22.9 687 10 Q9CGR7 20 765.5 22.9 687 10 Q9CGR2 20 759 22.6 703 10 Q9LMQ5 20 751 22.4 659 10 Q9LMQ5 20 751 22.4 659 10 Q9LMQ5 20 751 22.4 659 10 Q9LMQ5 20 751 22.2 669 5 Q9LMQ5 20 751 20 Q9LMQ5 20 Q9LMQ5 20 751 20 Q9LMQ5	U	P91892 aedes aegyp	D.	Q8is30 bactrocera	Q9fg17 arabidopsis	Q9c6r7 arabidopsis	077423 bactrocera	Q9c8k2 arabidopsis	വ	Q8t689 dictyosteli	Q8rxn0 arabidopsis		u		Q9sit6 arabidopsis	و		Q8t677 dictyosteli	Q9ngp5 dictyosteli					55		dictyos	dictyostel	oryza sat	Q9aru4 oryza sativ	
793 23.7 679 5 798.5 23.6 692 5 777.5 23.4 692 5 777.5 23.2 678 10 774.5 23.2 677 10 774.2 33.1 646 10 775.5 22.9 687 10 765.5 22.9 687 10 741.2 22.4 669 5 741.2 22.4 669 5 741.2 22.2 669 5 741.3 22.2 1528 5 741.3 22.2 1528 5 741.5 22.2 669 5 741.5 22.2 669 5 741.5 22.2 669 5 741.5 22.2 669 5 741.5 22.1 669 5 742.5 21.7 668 10																							1	\						
793 23.7 679 5 798.5 23.6 692 5 777.5 23.4 692 5 777.5 23.2 678 10 774.5 23.2 677 10 774.2 33.1 646 10 775.5 22.9 687 10 765.5 22.9 687 10 741.2 22.4 669 5 741.2 22.4 669 5 741.2 22.2 669 5 741.3 22.2 1528 5 741.3 22.2 1528 5 741.5 22.2 669 5 741.5 22.2 669 5 741.5 22.2 669 5 741.5 22.2 669 5 741.5 22.1 669 5 742.5 21.7 668 10	Q9BH97	P91892	Q9C6W5	081830	09FG17	Q9C6R7	077423	Q9CBK2	OBLMOS	Q8T689	QBRXNO	Q91.182	Q8WRF2	Q8RW19	91IS60	Q9M3D6	Q8WRR1	Q8T677	Q9NGP5	Q9LFG8	Q9C8J8	Q8GX48	Q949Y4	084TH5	087687	Ó 81684	Q86HQ2	Q7XUM2	Q9ARU4	
793 23.7 793 23.7 783.5 23.2 777.5 23.2 777.5 23.2 777.5 23.2 777.5 23.2 777.5 23.2 777.5 23.2 777.5 23.2 767.5 22.9 767.5 22.9	'n	ស	0			0								0	5	10	'n	Ŋ	Ŋ					10		`\		0	10	
793	619	692	648	679	567	646	670	687	695	798	703	672	699	691	649	725	699	1528	1328	739	678	678	662	662	1520	626	626	692	899	
	23.7	23.6	23.4	23.2	23.2	23.1	23.0	22.9	22.9	22.8	22.6	22.5	22.4	22.4	22.3	22.2	22.2	22.2	22.2	22.1	22.0	22.0	21.8	21.8	21.8	21.8	21.8	21.7	21.7	1
	793	790	783.5			\sim	772	767.5	766.5	763.5	759	755	751	749.5	746	745	744	743.5	743	741.5	739	739	730.5	730.5	730.5	730	730		-:	
	17	18	19	20	21	22	23	24	25	56	. 27	28	29	30	31	32	33	34	9	36	37	38	39	40	41	42	43	44	45	

96TA8	A8				
А	Q96TA8	PRELIMINARY;	PRT;	655 AA.	
U	Q96TA8;				
H	01-DEC-2001	(TremBirel. 19, C	reated)		
ь	01-DEC-2001	01-DEC-2001 (TrEMBLrel. 19, Last sequence update)	ast sequ	ence update)	
E	01-OCT-2003	01-OCT-2003 (TrEMBLrel. 25, Last annotation update)	ast anno	tation update)	
м	ATP-binding	ATP-binding cassette superfamily G (White) member 2 (Hypothetical	nily G (W	hite) member 2	(Hypothetical
臼	protein).				
z	ABCG2.				
S	Homo sapiens (Human).	(Human).			
υ	Eukaryota; N	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;	Craniat	a; Vertebrata;	Euteleostomi;
υ	Mammalia; Eu	Mammalia; Butheria; Primates; Catarrhíni; Hominidae; Homo.	Catarrh	ini; Hominidae;	Ношо.
×	NCBI TaxID≈9606;	1606;			
z	[1]				

ALIGNMENTS

RESULT 1

SEQUENCE FROM N.A.
MEDLINE=21201983; PubMed=11306452;
KOMERCHI H., KOCTAIN H., HARA Y., NAKAGAWA R., MATSUMOTO M.,
ATAKAWA H., NISHIMULA S.;
FIGHTIFICATION Of Dreast cancer resistant protein/mitoxantrone
resistance/placenta-specific, ATP-binding cassette transporter as a
rransporter of NB-506 and J-107088, topoisomerase I inhibitors with an
indolocarbacole structure.,
Cancer Res. 61:2827-2832(2001).

Straubberg R.;
Straubberg R.;
Submitted (JAN-2002) to the EMBL/GenBank/DDBJ databases.
EMBL; ABOS1885; BAB46931;
EMBL; ABOS1885; BAB46931;
GO; GO:0005620; C:membrane; IEA.
GO; GO:000524; F:ATP-binding; IEA.
GO; GO:0004009; F:ATP-binding cassette (ABC) transporter acti. . .; IEA.
GO; GO:0004019; P:ATP-binding cassette.
InterPro; IRRO0439; ABC_transporter.
InterPro; IRRO0439; ABC_transporter.
InterPro; IRRO0462; Ppantne_S.
Pfam; PF00006; ABC_transporter; 1. SEQUENCE FROM N.A. TISSUE=Pancreatic carcinoma;

N

```
ATP-binding
                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            361
                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                90T960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 3
   g
                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                           ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ģ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ਨੇ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEEEES
                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                       61 KEILSNINGIMKPGLNAILGPIGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKKN 120
                                                                                                                                                                                                                                               180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        600
                                                                                                                                                                                                                                                                                                                                                                SIHOPRYSIFKLFDSLTLLASGRIMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING 300
                                                                                                                                                                                                                                                                                                                                                                                         241 SIHOPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING 300
                                                                                                                                                                                                                                                                                                                                                                                                                         DSTAVALNREEDFKATEIIEPSKODKPLIEKLAEIYVNSSFYKETKAELHOLSGGEKKKK 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                  301 DSTAVALNREEDFKATEIIEPSKODKPLIEKLAEIYVNSSFYKETKAELHOLSGGEKKKK 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ITVFKEISYTTSFCHOLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDS 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MIMLPSIIFICIVYFMLGLKPKADAFFVMMFILMMVAYSASSMALALAAGQSVVSVATIL 540
                                                                                                                                                          9
                                                                                                                                               1 MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKTKSGFLPCRKPVE
                                                                                                                                                                                      61 KEILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN
                                                                                                                                                                                                                                               SGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGT
                                                                                                                                                                                                                                                                                                                             QFIRGVSGGERKRTSIGMELITDPSILFLDEPTTGLDSSTANAVLLLLXRMSKQGRTIF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGIQNRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 421 TGIQNRAGVLFFLTTNQCFSSVSAVELFVVEXKLFIHEYISGYYRVSSYFLGKLLSDLLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MIICEVEMMIESGLLVNLTIIASWLSWLQYFSIPRYGFTALQHNEFLGQNFCPGLNAIGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    541 MIICEVEMMIFSGLLVNLTTIASWLSWLQYFSIPRYGFTALQHNEFLGQNFCPGLNATGN
                                                                                                                                                                                                                                                                           121 SGYVVODDVVMGTLTVRENLOFSAALRLATTMTNHEKNERINRVIOELGLDKVADSKVGT
                                                                                                                                                                                                                                                                                                       181 @FIRGVSGGERKRISIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSKQGRTIIF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MRMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGQSVVSVATLL
                                                                                                                             MSSSNVEVFI PVSQGNTNGFPATASNDLKAFTEGAVLSFHNI CYRVKLKSGFLPCRKPVE
                                                                                                    0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     601 NPCNYATCTGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKLIFLKKYS 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 601 NPCNYATCTGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKLLFLKKYS 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Buteleostomi,
Mammalia, Eutheria, Primates, Catarrhini, Hominidae, Homo.
                                                                  99.8%; Score 3346; DB 4; Length 655; 99.8%; Pred. No. 1.4e-223; tive 0; Mismatches 1; Indels (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
Yoshikawa M., Yabuuchi H., Ikegami Y., Ishikawa T.;
Yoshikawa M., Yabuuchi H., Ikegami Y., Ishikawa T.;
Submitred (DEC-2001) to the EMBL/GenBank/DDBJ databases.
EMBL; AF465191 AAO14617.1;
GO: GO:0016020; C:membrane; IEA.
PROSITE; PS50893; ABC TRANSPORTER 2; 1.
PROSITE; PS00012; PHOSPHOPANTSHEINE; 1.
HYPOChetical protein; ATP-binding.
SEQUENCE 655 AA; 72314 MW; A8AF66B96034C5A8 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-WAR-2003 (TrEMBLrel. 23, Created)
01-WAR-2003 (TrEMBLrel. 23, Last sequence update)
01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATP-binding cassette protein ABCG2
                                                                  99.8°
Best Local Similarity 99.8°
Matches 654; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (Human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NCBI_TaxID=9606;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                 241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 481
                                                                                                                                                                                                                                               121
                                                                                                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             481
                                                                                                                                                                                                                                                                                                                                                                                                                         301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q81X16
Q81X16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  路路 数 88
                                                                                                                                                        셤
                                                                                                                                                                                      ଚ
                                                                                                                                                                                                              d.
                                                                                                                                                                                                                                             \stackrel{\diamond}{\delta}
                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ઠે
                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                             \dot{\delta}
                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ð
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   301 DSTAVALNREEDFKATEIIEPSKQDKPLIEKLAEIYVNSSFYKETKAELHQLSGGEKKKK 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               241 SIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181 OFIRGVSGGERKRISIGMELITDPSILFLDEPITGLDSSTANAVLLLKRMSKQGRIIIF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 MSSSNVEVPIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61 KEILSNINGIMKPGLNAILGPIGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61 KEILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OFIRGVSGGERKRISIGMELITDPSILFLDEPTIGLDSSTANAVLLLLKRMSKQGRTIIF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DSTAVALNREEDFKATEIIEPSKODKPLIEKLAEIYVNSSFYKETKAELHQLSGGEKKKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ITVFKEISYTTSFCHQLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        421 TGIQNRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           481 MRMLPSIIFTCIVYFMIGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGQSVVSVATLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    541 MTICEVEMMIPSGLLVNLTTIASWLSWLQYFSIPRYGFTALQHNEFLGQNFCPGLNATGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             541 MTICFVFMMIFSGLLVNLTTIASWLSWLQYFSIPRYGFTALQHNEFLGQNFCPGLNATGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  121 SGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    421 TGIQNRAGVLFFLTTNQCFSSVSAVELFVVEXKLFIHEYISGYYRVSSYFLGKLLSDLLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   481 MIMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGQSVVSVATLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     601 NPCNYATCTGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKLLFLKKYS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      601 NPCNYATCTGREYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKLLFLKKYS
GO; GO:0005524; F:ATP binding; IEA.
GO; GO:0004009; F:ATP-binding cassette (ABC) transporter acti.
GO; GO:000106; F:ATP-binding cassette (ABC) transporter acti.
GO; GO:000166; F:mucloctide binding; IEA.
GO; GO:0006810; P:transport; IEA.
InterPro; IFR003593; AAA ATPase.
InterPro; IPR003593; AAA ATPase.
InterPro; IPR0036162; Ppantne S.
Promo, IPR00065; ABC transporter.
Prodom; PP000106; ABC trans 1.
SWART; SM00382; AAA; I.
                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 655;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1; Indels
                                                                                                                                                                                                                                                                                                                                                                                    655 AA; 72314 MW; A8AF60B591D4C5A8 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Created)
Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                   99.7%; Score 3342; DB 4; 99.7%; Pred. No. 2.7e-223; ative 1; Mismatches 1;
                                                                                                                                                                                                                                                                                            PROSITE, PSS0893; ABC TRANSPORTER 2; 1. PROSITE; PS00012; PHOSPHOPANTETHEINE; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         O96LD6;
01-DEC-2001 (TrEMBLrel. 19, C.
01-DEC-2001 (TrEMBLrel. 19, L:
01-OCT-2003 (TrEMBLrel. 25, L:
ABC transporter ABCG2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Local Similarity 99.73
Matches 653; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRELIMINARY;
```

San Jane

SOOR NEW THAT A PRINCE OF SOOR NEW TO THE PR

```
61 KELLTNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPHGLSGDVLINGAPRPANFKCN 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        241 SIHQPRYSIFKLFDSLTLLASGRLMFHGPAREALGYRASIGYNCBPYNNFADFFLDVING 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                420 STGIQNRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLL 479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61 KEILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121 SGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGT 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121 SGYVVQDDVVMGTLTVRENLQFSAALRLPTTMTNHEKNERINMVIQELGLDKVADSKVGT 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  181 OPIRGVSGGERKRISIGMELITDPSILFLDEPITGLDSSTANAVLLLLKRMSKQGRITIF 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181 QFIRGVSGGERKRISIAMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSKQGRTIIF 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          241 SIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFBSAGYHCEAYNNPADFFLDIING 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DSTAVALNR-BEDFKATEIIEPSKQDKPLIEKLAEIYVNSSFYKETKAELHQLSGGEKKK 359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KITVFKEISYTTSFCHQLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKND 419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDITRE=2250127; PubMed=12054514;

Bisenblaetter T., Galla H.J.;

Bisenblaetter T., Galla Darrier.";

Bisenblaetter T., Galla Darrier.";

Bisenblaetter T., Galla Darrier.";

Gol. Gol. Gol. Galla Darrier. TEA.

Gol. Gol. Gol. Firmp. Dinding Cassette (ABC) transporter acti. . .; IEA.

Gol. Gol. Gol. Firmp. Pinding cassette (ABC) transporter acti. . .; IEA.

Gol. Gol. Gol. Firmp. Pinding Cassette (ABC) transporter acti. . .; IEA.

InterPro; IPR003593; AAA. ATPase.

InterPro; IPR003593; AAA. ATPase.

InterPro; IPR003593; ABC. Lansporter.

InterPro; IPR006162; Pantine S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVF
601 NPCNYATCIGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKLLFLKKYS 655
                                                                                                                                                                                                                                                                                                                                              Bukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi,
Mammalia, Eutheria, Cetartiodactyla, Suina, Suidae, Sus.
NCBI_TaxID=9823;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               B5.0%; Score 2849.5; DB 6; Length 656; 84.3%; Pred. No. 4e-189; tive 44; Mismatches 58; Indels 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             656 AA; 72392 MW; 118ADD5B53D9D67F CRC64;
                                                                                                                                                                                    01-0CT-2002 (TrEMBLrel. 22, Created)
01-0CT-2002 (TrEMBLrel. 22, Last sequence update)
01-0CT-2003 (TrEMBLrel. 25, Last annotation update)
                                                                                                                                     656 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PROSITE; PS50893; ABC TRANSPORTER 2; 1.
PROSITE; PS00012; PHOSPHOPANTETHEINE; 1.
ATP-binding.
SEQUENCE 656 AA; 72392 MW; 118ADD5B5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pfam; PF00005; ABC tran; 1.
Probom; PD000006; ABC transporter; 1.
SWART; SM00382; AAA; 1.
                                                                                                                                  PRT;
                                                                                                                                                                                                                                                                        Brain multidrug resistance protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Local Similarity 84.3%
Matches 553; Conservative
                                                                                                                                     PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                          Sus scrofa (Pig)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                     QBMIB3;
OBMIB3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             엄
                                                                                                                                                                ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ģ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                          SEQUENCE FROM N.A.

SCHUETZ J.D., Wall A.M., Sampath J., Sorrentino B., Du G.;

Schuetz J.D., Wall A.M., Sampath J., Sorrentino B., Du G.;

"The Human ABC Transporter, ABCGG, Transports Hoechst 33342 and

Requires an Intact Walker A Motif.",

Submitted (JAN-2001) to the EMBL/GenBank/DDBJ databases.

REL; AY017168; AAG52982.1; "REMEL; ARGING C::membrans; IEA.

RO; GO:00016020; C::membrans; IEA.

RO; GO:0004009; F:ATP-binding; IEA.

RO; GO:0000166; F:ATP-binding; IEA.

RO; GO:0000166; F:ATP-binding; IEA.

RO; GO:0000166; F:ATP-binding; IEA.

RO; GO:0000166; P:ATP-binding; IEA.

RITE-PRO; IPR003439; AAA ATPsse.

INTE-PRO; IPR003439; AAA ATPsse.

INTE-PRO; IPR00616; Pantine S.

INTE-PRO; IPR00616; Pantine S.

Robom; PR000006; AEC transporter; I.

RODOM; PR000006; AEC transporter; I.

RODOM; PR000006; AEC transporter; I.

RODOM; PR000006; AEC transporter; I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181 OFIRGVSGGERKRISIGMELITDPSILFLDEPITGLDSSTANAVLLLLKRMSKQGRIIIF 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SIHOPRYSIPKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          241 SIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DSTAVALNREEDFKATEIIEPSKQDKPLIEKLAEIYVNSSFYKETKAELHQLSGGEKKKK 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DSTAVALNREEDFKATEIIEPSKQDKPLIEKLAEIYVNSSFYKETKAELHQLSGGEKKKK 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     541 MIICEVEMMIFSGLLVNLTIIASWLSWLQYFSIPRYGFTALQHNEFLGQNFCPGLNATGN 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   541 MTICFVFMMIFSGLLVNLTTIASWLSWLQYFSIPRYGFTALQHNEFLGQNFCPGLNATGN 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61 KEILSNINGIMKPGLNAILGPIGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121 SGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGT 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            121 SGYVVQDDVVMGTLTVRENLOPSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGT 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61 KEILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAFRPANFKCN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ITVFKEISYTTSFCHOLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGI ONRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEY I SGYYRVSSYFLGKLLSDLLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                361 ITVFKEISYTTSFCHQLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     421 TGIQNRAGVLFFLITINQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MIMLPSI I FICI VY FMLGLKPKADAFFVMMFILMMVAYSASSMALAIAAGQSVVSVATLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        481 MRMLPSIIFTCIVYFMLGLKAKADAFFVMMFTLMMVAYSASSMALAIAAGQSVVSVATLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           601 NPCNYATCTGEEXLVKQGIDLSPWGLWKNHVALACMIVIFITIAYLKLLFLKKYS 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0; Gaps
Homo sapiens (Human).
Eukaryota, Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 655;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 655 AA; 72288 MW; B3B5DC02C095C4A8 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                99.6%; Score 3338; DB 4;
99.7%; Pred. No. 5.1e-223;
tive 0; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PROSITE, PS50893; ABC TRANSPORTER 2; 1. PROSITE, PS00012; PHOSPHOPANTETHEINE; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Similarity 99.7
Matches 653; Conservative
                                                                              NCBI_TaxID=9606;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATP-binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
```

à 셤 셤

ò

δ qq ઠે g

q

8 B

ò

8 g ò g $\overset{\circ}{\circ}$ g

```
SGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 2761; DB 4;
Pred. No. 4.2e-183;
0; Mismatches 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Æ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ProDom; PD00006; ABC transporter; 1. PROSITE; PS00012; PHOSPHOPANTETHEINE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               82.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity 99.8
Matches 540; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          541 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NCBI_TaxID=9606;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PROSITE; PSO
ATP-binding.
NON TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE
                                             120
                                                                                           181
                                                                                                                                    180
                                                                                                                                                                                                                           240
                                                                                                                                                                                                                                                                                                                     300
                                                                                                                                                                                                                                                                                                                                                                360
                                                                                                                                                                                                                                                                                                                                                                                                                                                       420
    121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q86V64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q86V64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ABCG2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
Q86V64
ID Q8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SO DRA RATA A DRA CON DRA RATA A DRA CON DRA RATA A DRA CON DR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                   요
                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                       ઠે
                                    셤
                                                                                           ð
                                                                                                                        셤
                                                                                                                                                                                ò
                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NEURINE-22388257; PubMed=12477932;

STRAIN-C57BL/GNCY, TISSUE-Hematopoletic Stem Cell;

MEDLINE-22388257; PubMed=12477932;

Strausberg R.L., Feingold E.A., Grouse L.H., Derge J.G.,

Strausberg R.L., Feingold E.A., Grouse L.H., Derge J.G.,

Altschul S.F., Zeeberg B., Buetow K.H., Schaefer C.F., Bhat N.K.,

Altschul S.F., Zeeberg B., Buetow K.H., Schaefer C.F., Bhat N.K.,

A Diatchenko L., Marusina K., Paramer A.A., Rubin G.M., Heish F.,

A Diatchenko L., Marusina K., Bonaldo M.F., Casavant T.L., Scheetz T.E.,

Bromstein M.J., Usdin T.B., Toshiyuki S., Carninci P., Prange C.,

RA Raha S.S., Loquellano N.A., Bonaldo M.F., Casavant T.L., Scheetz T.E.,

Bosak S.A., McEwan P.J., McKernan K.J., Abramson R.D., Mullahy S.J.,

RA Richards S., Worley K.C., Hale S., Garcia A.M., Gay L.J., Hulyk S.M.,

RA Richards S., Worley V.M., Sodergren B.J., Lu X., Gibbs R.A.,

Rahey J., Helton E., Ketteman M., Madan A., Rodrigues S., Sanchez A.,

RA Hiting M., Madan A., Young A.C., Sheychenko Y., Boulfard G.G.,

RA Hiting M., Madan A., Young A.C., Sheychenko Y., Boulfard G.G.,

RA Richards R.R., Touchman J.W., Green E.D., Dickson M.C.,

RA Richards A.C., Grimwood J., Schmutz J., Myers R.M., Butterfield Y.S.,

R. Topeneration and initial analysis of more than 15,000 full-length human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KEILSDINGIMKPGLNAILGPTGGGGKSSLLDVLAARKDPKGLSGDVLINGAPQPAHFKCC 119
                                                                                                                                                             599
                                                                      539
                                                                                                                 540
                                                                                                                                                                                                           900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  59
                          480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KEILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE
  PMRMLPSIIFTCITYFLIGLKPAVGSFFIMMFTLMMVAYSASSMALAIAAGQSVVSVATL
                                                                                                                                                             LMTICFVFMMIFSGLLVNLTTIASWLSWLQYFSIPRYGFTALQHNEFLGQNFCPGLNATG
                                                                                                                                                                                            PMIMLPSIIFICIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGQSVVSVATL
                                                                                                                                                                                                                                                                            NNPCNYATCTGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKLLFLKKYS 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi,
Mammalia, Eutheria, Rodentia, Sciurognathi, Muridae, Murinae, Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 11; Length 657;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Strausberg R.;
Submitted (JUN-2003) to the EMBL/GenBank/DDBJ databases.
EMBL; BC053730; AAH53730.1; -.
ATP-binding:
SEQUENCE 657 AA; 72977 MW; DCD70C5D9FA2BASF CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-0CT-2003 (TrEMBLrel. 25, Created)
01-0CT-2003 (TrEMBLrel. 25, Last sequence update)
01-0CT-2003 (TrEMBLrel. 25, Last annotation update)
ATP-binding cassette, sub-family G, member 2.
Mus musculus (Mouse).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A. STRAIN=C57BL/6NCr; TISSUE=Hematopoietic Stem Cell;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Proc. Natl. Acad. Sci. U.S.A. 99:16899-16903(2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             82.4%; Score 2762; DB 11;
llarity 81.5%; Pred. No. 4.7e-183;
Conservative 52; Mismatches 66;
                                                                                                                                                                                                                                                                                                                                                                                                                 657 AA
                                                                                                                                                                                                                                                                                                                                                                                                                 PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   and mouse cDNA sequences."
                                                                                                                                                                                                                                                                                                                                                                                                                   PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Local Simi
Matches 536;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              09
                                                                                                                    481
                                                                                                                                                                 540
                                                                                                                                                                                                                                                        909
                                                                                                                                                                                                                                                                                                    601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                          480
                                                                                                                                                                                                                                                                                                                                                                                                                   Q7TMS5
                                                                                                                                                                                                                                                                                                                                                                          'n
                                                                                                                                                                                                                                                                                                                                                                          RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                    셤
                                                                                                                                                                 ð
                                                                                                                                                                                                           원
                                                                                                                                                                                                                                                           ઠે
                                                                                                                                                                                                                                                                                                    셤
                                                                          ઠે
```

```
ó
                                                                                                                                                                                                                                                                                                                                                                                                                     419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STGIQNRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLL 479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     540 LMTICEVERMIFSGLLVNLTIASWLQYFSIPRYGFTALQHNEFLGQNFCPGLNATG 599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    241 SIHOPRYSIFKUFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING 300
                                                                                                                                                                                                                    299
                                                                                                                                                                                                                                                                                                                   DSSAVMINREEQDNEANKTEEPSKGEKPVIENLSEFYINSAIYGETKAELDQLPGAQEKK 359
                                                                                                                                                                                                                                                                                                                                                                     419
                                                                    240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .; IEA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NNPC--NYATCIGEBYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKLLFLKKYS 655
                                                                                                                                                                                              301 DSTAVALNREE-DFKATEIIEPSKODKPLIEKLAEIYVNSSFYKETKAELHQLSGGEKKK
                                                                                                                                                                                                                                                                                                                                                                     KITVFKEISYTTSFCHOLRWSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          480 PMTMLPSIIFTCIVYFMLGLKPKADAFFVVMFTLMMVAYSASSMALAIAAGQSVVSVATL
OFIRGVSGGERKRISIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSKQGRTIIF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Zhang W., Petrovic J.-M., Andrade M.F., Zhang H., Stanimirovic D.B "The Expression and Functional Characterization of ABCG2 in Brain Endothelial Cells and Vessels.";
Submitted (MAY-2003) to the EMBL/GenBank/DDBJ databases.
EMBL; AY288307; AAP31310.1; --
EMBL; AY288307; AAP31310.1; --
GO; GO:0016620; C:Membrane; IEA.
GO; GO:0005524; F:ATP binding; IEA.
GO; GO:0005810; F:ATP binding cassette (ABC) transporter acti...
GO; GO:0006810; P:transport; IEA.
InterPro; IPR003439; ABC transporter.
InterPro; IPR006162; Papaitne S.
Pfam; PF00005; ABC transporter.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Homo sapiens (Human).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 541;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1
60450 MW; 050B2742C6A3F66C CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-JUN-2003 (TrEMBLrel. 24, Created)
01-JUN-2003 (TrEMBLrel. 24, Last sequence update)
01-JUN-2003 (TrEMBLrel. 25, Last annotation update)
ATP-binding cassette sub-family G member 2 (Fragment)
```

S

'n

4; Gaps

9 53 240

239

479

```
240 SIHQPRYSIFKLFDSLTLLASGKLVFHGPAQKALEYPASAGYHCEPYNNPADFFLDVING 299
                                                                                                                                                                                                                                                                                                                61 KEILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SIHOPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   300 DSSAVMLNREEQDNEANKTEEPSKGEKPVIENLSEFYINSAIYGETKAELDQLPGAQEKK 359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       360 KITVFKEISYTTSFCHQLRWVSKRSFKNLLGNPQASIAQIIVTWVLGLVIGAIYFGLKND 419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          360 GTSAFKEPUYVTSFCHQLRWIARRSFKNLLGNPQASVAQLIVTVILGLIIGAIYFDLKYD 419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  480 PMTMLPSI1FTCIVYFWLGLKPKADAFFVWMFTLMMVAYSASSMALAIAAGQSVVSVATL 539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DSTAVALNREE-DFKATEIIEPSKODKPLIEKLAEIYVNSSFYKETKAELHOLSGGEKKK 359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              420 AAGMONRAGVLFFLTTNÓCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFFGKVMSDLL 479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IMTICEVEMMIESGILVNITTIASWISWIQYFSIPRYGFTALQHNEFLGQNFCPGLNATG 599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             540 LMTIAFVFMMLFSGLLVNLRTIGPMLSWLQYFSIPRYGFTALQYNBFLGQEFCPGFNVTD 599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       600 NSTCVNSYAICTGNEYLINGGIELSPWGLWKNHVALACMIIIFLITAYLKLLFLKKYS 657
                                                                                                                                                                                                                                                                                                                                    KEILSDINGIMKPGLMAILGPTGGGKSSLLDVLAARKDPKGLSGDVLINGAPQPAHFKCC
                                                                                                                                                                                                                                                                                                                                                                                                            120 SGYVVQDDVVMGTLTVRENLQFSAALRLPTTMKNHEKNERINTIIKELGLEKVADSKVGT
                                                                                                                                                                                                                                                            1 MSSSNDHVLVPMSQRNNNGLPRMNSRAVRTLAEGDVLSFHHITYRVKVKSGFL-VRKTVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                               QFIRGVSGGERKRTSIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSKQGRTIIF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE
                                                                                                                                                                                                                                                                                                                                                                                      SGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STGIQNRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi,
Mammalia, Eutheria, Rodentia, Sciurognathi, Muridae, Murinae, Rattus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NNPC--NYATCTGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKLLFLKKYS
                                                                                                                                                                 DB 11; Length 657;
                                                                                                                                                             Query Match 82.2%; Score 2757; DB 11; Length Best Local Similarity 81.5%; Pred. No. 1e-182; Matches 536; Conservative 51; Mismatches 67; Indels
                                                                                                                             657 AA; 73021 MW; 207B70BC272CC0D5 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   657 AA
                                                                       PROSITE; PS50893; ABC TRANSPORTER 2; 1. PROSITE; PS00012; PHOSPHOPANTETHEINE; 1.
                 Pfam; PF00005; ABC tran; 1.
ProDom; PD000006; ABC transporter; 1.
SMART; SM00382; AAA; I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRT;
InterPro; IPR006162; Ppantne_S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-JUN-2003 (TrEMBLrel. 24,
01-JUN-2003 (TrEMBLrel. 24,
01-OCT-2003 (TrEMBLrel. 25,
ABC transporter ABGG2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (Rat)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Rattus norvegicus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NCBI_TaxID=10116;
                                                                                                       ATP-binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            540
                                                                                                                                                                                                                                                                                                                                                    9
                                                                                                                                                                                                                                                                                                                                                                                        121
                                                                                                                                                                                                                                                                                                                                                                                                                                                               181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   600
                                                                                                                             SEQUENCE
                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT
Q80W57
 ò
                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                đ
                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         쉱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   원
                                                                                                                             120
                                                                                                                                                                 294
                                                                                                                                                                                                     180
                                                                                                                                                                                                                                        354
                                                                                                                                                                                                                                                                                                                414
                                                                                                                                                                                                                                                                                                                                                    300
                                                                                                                                                                                                                                                                                                                                                                                      474
                                                                                                                                                                                                                                                                                                                                                                                                                          360
                                                                                                                                                                                                                                                                                                                                                                                                                                                             534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         480
                                                                                         234
                                                                                                                                                                                                                                                                      181 IDIINGDSTAVALNREEDFKATEIIEPSKODKPLIEKLAEIYVNSSFYKETKAELHQLSG 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   481 INATGNNPCNYATCTGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKLLFLKKY 540
               115 ANFKCNSGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVA 174
                                                       9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Cancer Res. 59:4237-4241(1999).

EMBL, AF14021B, AMD5216.1, -.

BMGD, MG1:1347061, Abc92.

GO, GO:0016020; C:membrane; IEA.

GO, GO:000564; F:ATP-binding; IEA.

GO, GO:000166; F:ATP-binding; IEA.

GO, GO:000166; F:Nucleotide binding; IEA.

GO, GO:0000160; P:ATP-binding cassette (ABC) transporter acti. . .; IEA.

GO, GO:0000160; P:ATP-binding cassette.

InterPro; IPR003593; AAA, APPase.

InterPro; IPR003439; AAA, APPase.

InterPro; IPR003439; ABC_transporter.
                                     1 ANFKCNSGYVVQDDVVMGTLTVRENLQFSAALRLATTWTNHEKNERINRVIQELGLDKVA
                                                                                                                         DSKVGTQFIRGVSGGERKRTSIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSKQ
                                                                                                                                                               GRIIIFSIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFF
                                                                                                                                                                                                   121 GRTIIFSIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFF
                                                                                                                                                                                                                                        LDIINGDSTAVALNREEDFKATEIIEPSKQDKPLIEKLAEIYVNSSFYKETKAELHQLSG
                                                                                                                                                                                                                                                                                                              GEKKKKITVFKEISYTTSFCHQLRWSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYF
                                                                                                                                                                                                                                                                                                                                                241 GEKKKKITVFKEISYTTSFCHQLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYF
                                                                                                                                                                                                                                                                                                                                                                                                                        301 GLKNDSTGIQNRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKL
                                                                                                                                                                                                                                                                                                                                                                                                                                                             475 LSDLLPMTMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGQSVV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 361 LSDLLPWRMLPSIIFTCIVYFMLGLKPKADAPFVWMFTLWMVAYSASSMALAIAAGQSVV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SVATILIMTICEVEMMIESGLLVNLTTIASWLSWLQYFSIPRYGFTALOHNEFLGQNFCPG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       421 SVATLIMTICEVERMIFSGLLVNLTTIASWLSWLOYFSIPRYGFTALQHNEFLGGNFCPG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LNATGNNPCNYATCTGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKLLFLKKY
                                                                                         DSKVGTQFIRGVSGGERKRTSIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSKQ
                                                                                                                                                                                                                                                                                                                                                                                      GLKNDSTGIQNRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRAIN=FVB; TISSUS=Liver; MEDLINE=99413474; PubMed=10485464; Allen J.D., Brinkhuis R.F., Wijnbolds J., Schinkel A.H.; The mouse Bcrp1/Mxr/Abcp gene: amplification and overexpression in cell lines selected for resistance to topotecan, mitoxantrone, or doxorubicin.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota, Metazoa; Chordata, Craniata, Vertebrata, Euteleostomi,
Mammalia; Eutheria; Rodentia; Sciurognathi, Muridae; Musinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-MAY-2000 (TrEMBLrel. 13, Created)
01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
01-MAY-2003 (TrEMBLrel. 25, Last annotation update)
Breast cancer resistance protein 1.
ABCG2 OR BCRP1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mus musculus (Mouse)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     655 S 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    541 S
                                                                                                                                                               235
                                                                                                                                                                                                                                                                                                                355
                                                                                                                                                                                                                                                                                                                                                                                      415
                                                                                         175
                                                                                                                                                                                                                                        295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     535
                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q9R004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q9R004
                                                                                       δ
                                                                                                                       g
                                                                                                                                                             ò
                                                                                                                                                                                             g
                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                        윱
                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                            ద
                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                            ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
```

, i

```
240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        241
, eg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                            ñ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SIHQPRYSIFKLFDSLTLLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KITVFKEISYTTSFCHQLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKND 419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     360 GSSAFREPVYVTSFCHQLRWIARRSFKNLLGNPQASVAQLIVTVILGLIIGALYFGLKND 419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STGIQNRAGVLFFLTINQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLL 479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LMTICEVEWMIFSGLLVNLTTIASWLSWLOYFSIPRYGFTALQHNEFLGQNFCPGLNATG 599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KEILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NNPC--NYATCTGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTJAYLKLIFLKKYS 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PMIMILESII FICIVY FMLGLKPKADAFFVMMFTLMMVAXSASSMALAIAAGOSVVSVATL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      540 İMTİSFVENMIFSGILVNIRTIGPMISMIQYFSIPRYGFTALQENBFIGGEFCPGINVIM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SGYVVQDDVVMGTLTVRENLQPSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   QFIRGVSGGERKRISIGMELLIDDSILFLDEPTIGLDSSTANAVLLLLKRMSKQGRIIIF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 MSSSNVEVFIPVSQGNINGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DSTAVALNR-EEDFKATEIIEPSKODKPLIEKLAEIYVNSSFYKETKAELHQLSGGEKKK
                     Hori S., Ohtsuki S., Terasaki T.;
Hori S., Ohtsuki S., Terasaki T.;
"Expression and regulation of ABCG2 at the rat blood-brain barrier.
Submitted (MAR-2003) to the EMBL/GenBank/DDBJ databases.
EMBL; AB105817; BAC76951; -.
GO; GO:0005524; F:ATP binding: IEA.
GO; GO:0004009; F:ATP binding: IEA.
GO; GO:0004009; F:ATP binding: IEA.
InterPro; IPR00359; AAA_ATPase.
InterPro; IPR003439; AAA_ATPase.
InterPro; IPR003439; ABC transporter.
InterPro; IPR003439; ABC transporter.
                                                                                                                                                                                                                                                                                                                                                                                                                                              4;
                                                                                                                                                                                                                                                                                                                                                                                                   Length 657;
                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                               PEGNI, PF00005; ABC tran; 1.

Prodom; PD000006; ABC transporter; 1.

SMART; SM0382; AAA; I.

PROSITE; PS50893; ABC TRANSPORTER 2; 1.

PROSITE; PS500012; PHOSPHOPANTETHEINE; 1.

SEQUENCE 657 AA; 72960 MW; C975C61A08489027 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 82.2%; Score 2754; DB 11; Best Local Similarity 81.0%; Pred. No. 1.7e-182; Matches 533; Conservative 52; Mismatches 69;
            STRAIN=wistar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    480 ]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .
අ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
          RAC DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DRACT DR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ઠ
```

Æ 657

PRT;

PRELIMINARY;

QBOST1 QBOST1;

RESULT 9 Q80ST1 ID Q80ST

```
539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KITVEKEISYTTSFCHQLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKND 419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STGIQNRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLL 479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SIHOPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFBSAGYHCEAYNNPADFFLDIING 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DSTAVALNR-BEDFKATEIIEPSKODKPLIEKLABIYVNSSFYKETKAELHQLSGGEKKK 359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PMIMLESIIFTCIVYFMLGLKPKADAFFVMMPTLMWVAYSASSMALAIAAGQSVVSVATL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KEILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OFIRGUSGGERKKTSIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSKQGRTIIF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60 KEILSDINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPRGLSGDVLINGAPQPANFKCS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121 SGYVVODDVVMGTLTVRENLOFSAALRLATTMTNHEKNERINRVIOELGLDKVADSKVGT
                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.

SEQUENCE FROM N.A.

SEQUENCE PROM N.A.

A Yabunchi H., Ishikawa T.;

Submitted (MAR.2020) to the EMBL/GenBank/DDBJ databases.

REMBL; AY089996; AAM09106.1; -..

REMBL; AY089996; AAM09108.1; -..

REMBL; AY089998; AAM09108.1; -..

RO; GO:0016020; C:membrane; IEA.

GO; GO:0016020; C:membrane; IEA.

GO; GO:0005524; F:ATP binding cassette (ABC) transporter acti...,

RO; GO:0000166; F:Nucleotide binding; IEA.

GO; GO:000166; F:Nucleotide binding; IEA.

RO; GO:000166; F:Nucleotide binding; IEA.

RICEPRO; IPR001939; AAA_ATPase.

InterPro; IPR001939; AAA_ATPase.

RICEPRO; IPR001939; AAC_transporter.

REPPOM; PD000006; ABC_transporter; 1.

REPPOM; PD000006; ABC_transporter; 1.
01-JUN-2003 (TrEMBLrel. 24, Created)
01-JUN-2003 (TrEMBLrel. 24, Last sequence update)
01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
17-Dinding cassette protein G2 transcript variant B (ATP-binding cassette protein G2 transcript variant C) (ATP-binding cassette protein G2 transcript variant C)
                                                                                                                                                                                        Craniata; Vertebrata; Euteleostomi;
Sciurognathi; Muridae; Murinae; Rat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       657 AA; 72960 MW; E194871E1C1AC201 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity 80.9%; Pred. No. 2.3e-182;
Matches 532; Conservative 53; Mismatches 69;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SWART; SM0382; AAA; I.
PROSTIE; PSS0893; ABC_TRANSPORTER 2; 1.
PROSITE; PS08012; PHOSPHOPANTETHEINE; 1.
ATP-binding.
                                                                                                                                                                                        Bukaryota; Metazoa; Chordata;
Mammalia; Butheria; Rodentia;
NCBI_TaxID=10116;
                                                                                                                                                                         norvegicus (Rat)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   원
```

```
(TrEMBLrel. 23, C
(TrEMBLrel. 23, L
(TrEMBLrel. 25, I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-MAR-2003 (TrEMBLrel
01-MAR-2003 (TrEMBLrel
01-OCT-2003 (TrEMBLrel
ATP-binding cassette.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61
                                                                                                            360
                                                                                                                                                            420
                                                                                                                                                                                                                                                         480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DE QUEKIS

TO QUERIS

TO QUERIS

DT 01-MAR-2

DT 01-MAR-2

DE ATP-CIT-2

DE ATP-CIT-2

DE ATP-CIT-2

DE ATP-CIT-2

DE ATP-CIT-3

GN ABCG3.

OS BUKARYOR

CO Mammalia

NO (1)

RP SEQUENCY

RC STRAINS

RA THE FANT

R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                       ď
                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                              a
                                                8 8
                                                                                                                                                       ઠ
                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ω
•
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   241 SIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SGYVVQDDVVMGTLTVRENLQFSAALRLATTWTNHEKNERINRVIQELGLDKVADSKVGT 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ^3 dstavalnr-bedfkateliepskodkplieklablivnsspyketkaelhqlsggekkk 359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60 KEILSDINGIMKPGINAILGPTGGGKSSLLDVLAARKDPRGLSGDVLINGAPQPANFKCS 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KEILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN 120
                                              LMTICEVEMMIESGLLVNLTTIASWLSWLQYFSIPRYGFTALQHNEFLGQNFCPGLNATG 599
                                                                                                                                   NNPC--NYATCTGEEYLVKQGIDLSPWGLWKNHVALACMIVIELTIAYLKLLFLKKYS 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                240 SIHQPRYSIFKLFDSLTLTASGKLMFHGFAQKALEYFASAGYHCEPYNNPADFFLDVING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           181 QFIRGVSGGERKRISIGMELITDPSILFLDEPITGLDSSTANAVLLLLKRMSKQGRIIIF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE
PMRFLPSVIYTCLLYFMLGLKRTVEAFFIMMFTLIMVAYTASSMALAIAAGQSVVSVATL
                                                                          UL-UUN-2003 (TrEMBLrel. 24, Last sequence update)
OI-OCT-2003 (TrEMBLrel. 25, Last sequence update)
ATP-binding_cassette transporter ABCG2.
Rattus norvegicus (Rat).
Bukaryota; Metazoa; Chofata; Craniata; Vertebrata; Buteleostomi;
Mammalia; Butheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
NCBL_TaxID=10116;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A SEQUENCE FROM N.A.

A SIGNEM OK, Satake M., Okaya A., Kitanaka J., Kitanaka N.,

Shimano K., Satake M., Okaya A., Kitanaka J., Kitanaka N.,

A Takemura M., Sakagami M., Terada N., Tsujimura T.;

A Takemura M., Sakagami M., Terada N., Tsujimura T.;

Texpression of ATP-binding Cassette Transporter ABCG2/BCRP1.";

I. Am. J. Pathol. 0:0-0(2003)

I. Am. J. Pathol. 0:0-0(2003)

I. Am. J. Rathol. 0:0-0(2003)

I. Am. J. Rathol. 0:0-0(2003)

R. GO; GO:000524; F:ATP binding; IEA.

GO; GO:0004009; F:ATP binding; IEA.

GO; GO:0004009; F:ATP-binding cassette (ABC) transporter acti. . .;

R. GO; GO:0004009; F:ATP-binding cassette

GO; GO:0004009; F:ATP-binding cassette

R. GO; GO:0004009; F:ATP-binding cassette

R. GO; GO:0004009; F:ATP-binding cassette

R. InterPro; IPR003439; AAA. ATPase.

R. InterPro; IPR003439; AAA. Transporter.

R. InterPro; IPR003429; PadaC. transporter.

R. InterPro; PR005162; Ppantne_S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            81.8%; Score 2742; DB 11; Length 657;
80.9%; Pred. No. 1.1e-181;
iive 51; Mismatches 71; Indels 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PROSITE; PS50893; ABC TRANSPORTER_2; 1.
PROSITE; PS00012; PHOSPHOPANTETHEINE; 1.
ATP-binding.
SEQUENCE 657 AA; 72961 MW; 458980CC3903D5CE CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pfam; PF00005; ABC_tran; 1.
ProDom; PD000006; ABC_transporter; 1.
SMART; SM00382; AAA; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Similarity ov.,
Matches 532; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61
                                                                                                 540
                                                                                                                                             600
                                                                                                                                                                                           600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                   540
                                                                                                                                                                                                                                                                      RESULT 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        쉱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ð
                                                                                                                                                                                                                                                                                                                                           ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ઠે
                                                                                                 셤
                                                                                                                                                ò
                                                                                                                                                                                         g
                                                      ઠે
```

```
KEILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61 IERLSNISGIMKPGLNAIMGPQDGSRSLLLDVLAARRDFRGLSGDILINGKPRPANFKCT 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGT 180
                                                                                                                                                                                                                                                                                                                                                                                                       479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      540 IMTICEVEMMIFSGLLVNLTITASWLQYFSIPRYGFTALQHNEFLGQNFCPGLNATG 599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CRAINCE FROM N.A.

STRAIN-C57BL/6J; TISSUE=Bye;

STRAIN-C57BL/6J; TISSUE=Bye;

XM MEDLINE=22354683; PubMed=1246683;

A He FANTOM CONSORTIUM:

A the RIKEN Genome Exploration Research Group Phase I & II Team;

A the RIKEN Genome Exploration Research Group Phase I & II Team;

XT Go,770 (Hull-length CDNAs.";

Nature 420:563-573 (2002).

B TR, Prof45; Prof45.

B MGD; MGI:1351624; Abcg3.

CO; GO:000520; C:membrane; IEA.

GO; GO:000520; F:ATP-binding; IEA.

GO; GO:000520; F:ATP-binding; Cassette (ABC) transporter acti...; IEA.

SO; GO:0005439; ABC_transport; IEA.

TH error of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              丑---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           360 KITVFKEISYTTSFCHOLRWVSKRSFKNILGNPQASIAQIIVTVVLGLVIGAIXFGLKND
                                                                                                                                                                                        GSSFFKEPVYVISFCHQLRWIARRSFKNLLGNPQASVAQLIVIVILGLIIGALYFGLKND
                                                                                                                                                                                                                                                                                                                       STGIONRAGVLFFLTTNOCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PMTMLPSIIFTCIVYFMLGLKPKADAFFVVMFTLMMVAYSASSMALAIAAGQSVVSVATL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus. NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 11; Length 650;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
53.3%; Score 1787.5; DB 11; Lengt.
Best Local Similarity 55.3%; Pred. No. 1.8e-115;
Matches 363; Conservative 104; Mismatches 174; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Created)
Last sequence update)
Last annotation update)
```

312 429

291

249

470 605

Lis

윱

ద ò

ò

셤 ò 원 ò g ઠે g ઠ 셤

ઠે

```
723 AFKDVHFTCTDSQKIGGVCPVQY----GNNVIENMGYDIDHF--WRNVMILVLYIIGFRV 776
                                                                                                                                                                                                                                                                                                                                                                                                                                                            IAAGOSV--VSVATLLMTICFVFMMIFSGLLVNLTTIASWLSWLQYFSIPRYGFTALOHN 584
                                                                                                        RKPVEKEILSNINGIMKPG-LNAILGPTGGGKSSILDVLAARKDPSGLSGDVLINGAPRP 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.

Yamada K., Banh J., Banno P., Chang E., Dale J.M., Goldsmith A.D.,
Yamada K., Onodera C.S., Quach H.L., Tang C., Toriumi M., Wu H.C.,
Yamamura Y., Yu G., Yu S., Bowser L., Carninci P., Chen H., Cheuk R.,
Hayashizaki Y., Ishida J., Jones T., Kamiya A., Karlin-Neumann G.,
Kawai J., Kim C., Koesema E., Lam B., Lin J., Meyers M.C., Miranda M.,
Narusaka M., Nguyen M., Palm C.J., Sakurai T., Satou M., Saki M.,
Shinn P., Southwick A., Tracy S.E., Shinozaki K., Davis R.W.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EFLGONF-CPGLNATGN-NPCNYATCTGEEYLVKOGIDLSPWGLWKNHVALACMIVIF--
                                                                                                                                                                                                                                                                                                                                                                                       412 IYFGLKNDSTGIQNRAGVLFFLTTNQCFSSV-SAVELFVVEKKLFIHEYISGYYRVSSYF
                                                                                                                                                                                                                                                                                                                                                                                                       SKOGRTIIFSIHOPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPA
                                                                                                                                                                               DPFLDIIN-----GDSTAVALNREED-----------
                                                                                                                                                                                                                                        313 -FKATEIIEPSKOD-------KPLIEK----LAEIYVNSSFYKETKAELHQL
                                                                                                                                                                                                                                                                                                      SGGEKKKKITVFK-EISYTTSFCHOLRWVSKRSFKNLLGNPOASIAOIIVTVVLGLVIGA
                                                                                                                                                                                                                                                                                                                                                LGKLLSDLLPMTMLPSIIFTCIVYPMLGLKPKADAFF----VWMFTLMMVAYSASSWALA
                                                                      AT5G05530.

Arabidopsis thaliana (Mouse-ear cress).

Bukaryota, Viridiplantae, Streptophyta, Embryophyta, Tracheophyta;

Spermatophyta; Magnoliophyta; eudicotyledons, core eudicots, rosids;

euroaids II, Brassicales; Brassicaceae, Arabidopsis.

NCBI_TAXID=3702;
                                                      AN-PKCNSGYVVQDDVVMGTLTVRENLQFSAALRLATTWTNHEKNERINRVIQELGLDKV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       093Y54,
01-DEC-2001 (TrEMBLrel. 19, Created)
01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
Putative ABC transporter protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ā
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           790
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LTIAYLKLLFLKKY 654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LTFLVLKLKSRNKF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             585
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            909
                                                                                     190
                                                                                                               174
                                                                                                                                           250
                                                                                                                                                                      232
                                                                                                                                                                                                310
                                                                                                                                                                                                                           292
                                                                                                                                                                                                                                                     370
                                                                                                                                                                                                                                                                                                            430
                                                                                                                                                                                                                                                                                                                                      353
                                                                                                                                                                                                                                                                                                                                                                 490
                                                                                                                                                                                                                                                                                                                                                                                                                                                471
                                                            115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q93YS4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
Q93YS4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            유
                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                       유
                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                     В
                                                                                                                                                                      ò
                                                                                                                                                                                          셤
                                                          ò
                                                                                g
                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20;
                                                                                                                                                                                                                                                                     469
                                                                                                                                                                                                                                                                                              LLPMTMLPSIIFTCIVYFWLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGQSVVSVA 537
                                                                                                                                                                                                                                                                                                                                                                                 589
                                                                                                                                                                                    417
                                                                                                                                                                                                                409
                                                                                                                                                                                                                                           477
                                                                                                                                                                                                                                                                                                                                                     TLLMTICFVFMMIFSGLLVNLTTIASWLSWLQYFSIPRYGFTALQHNEFLGQNFCPGLNA 597
                       240
                                                                        SINQPRYSIFKLFDSLTLLASGRLWFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING 300
                                                                                                                               357
                                                                                                                                                                                                                                                                                                                                                                                                                                      645
                                                                                                                                                 GFSNILDTEEDGHEDDKYEELFERQYQ---VTGKLANMYAQSPLYSETRAILDQLLGEQK
                                                                                                                                                                                   KKKITVFKEISYTTSFCHOLRWVSKRSFKNLLGNPOASIAQIIVTVVLGLVIGAIYFGLK
                                                                                                                                                                                                      TLLVTIYFVFMLFFSGLSLXSGSFLPKLSWIQYFSIPHYGFRALLHNEFLGQNFCPEHNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                       QFIRGVSGGERKRISIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSKQGRIIIF
                                    DSTAVALNRE---EDFKATEIIEPSKODKPLIEKLAEIYVNSSFYKETKAELHQLSGGEK
                                                                                                                                                                                                                                           NDSTGIQNRAGVLFFLTINQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSD
                                                                                                                                                                                                                                                                                                                                                                                                             652
                                                                                                                                                                                                                                                                                                                                                                                                        89;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    acti.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 801;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Anjard C., Loomis W.F.;
Anjard C., Loomis W.F.;
Anjard C., Loomis W.F.;
Submitted (FEB-2002) to the EMBL/GenBank/DDBJ databases.
Submitted (FEB-2002) to the EMBL/GenBank/DDBJ databases.
Submitted (FEB-2002) to the EMBL/GenBank/DDBJ databases.
Submitted (FEB-2002) to the EMBL/GenBank/DDBJ databases.
Submitted (FEB-2002) to the EMBL/GenBank/DDBJ databases.
C. :-SIMILARITY: BELGONGS TO THE ABC TRANSPORTER FAMILY.
R GO, GO:0016620; C:membrane; IEA.
R GO; GO:0016621; F:ATP binding; IEA.
R GO; GO:0004009; F:ATP-binding iEA.
R GO; GO:0004009; F:ATP-binding; IEA.
R GO; GO:0004009; R:ATP-binding; IEA.
R GO; GO:0004009; R:ATP-binding; IEA.
R InterPro; IPR003593; AAA. Tarasporter.
R Frobon; PD000006; ABC transporter; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       90052 MW; CCC4F0036CB195A3 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Dictyostelium discoideum (Slime mold).
Eukaryota, Mycetozoa, Dictyosteliida; Dictyostelium
NCBI_TaxID*44689;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Created)
Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
25.3%; Score 847.5; DB 5;
Best Local Similarity 33.7%; Pred. No. 3.9e-50;
Matches 227; Conservative 106; Mismatches 252;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PROSITE; PS00211; ABC TRANSPORTER 1; 1. PROSITE; PS50893; ABC TRANSPORTER 2; 1. ATP-binding; Transport. SEQUENCE 801 AA; 90052 MW; CCC4F003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-07N-2002 (TrEMBLrel. 21, 01-07N-2002 (TrEMBLrel. 21, 01-0CT-2003 (TrEMBLrel. 25, ABC transporter Abcdl.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                241
                                                                                                                                                                                                                                                                                                                                                                                                                598
                                                                                                                                                                                                                                                                                                                                                                                                                                          590
                                                                                                                                                              294
                                                                                                                                                                                                                   351
                                                                                                                                                                                                                                               418
                                                                                                                                                                                                                                                                          410
                                                                                                                                                                                                                                                                                                                               470
                                                                                                                                                                                                                                                                                                                                                           538
                                                                                                                                                                                                                                                                                                                                                                                     530
                                                                                                                                    301
                                                                                                                                                                                          358
                                                                                                                                                                                                                                                                                                    478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q8T691
ID Q8T691
AC Q8T691;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 12
```

```
PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    OLLAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        356
                                           720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Tamura
                                                                                                                                                                                         09NH94
                                                                                                                                                                  Q9NH94
                                                                                                                 RESULT 14
Q9NH94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    원
                                                                                                                                                                                         원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ठ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ð
                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VHEYLVBAYETRVAEQEKKKILDPVPLDEBAKAKSTRLKROMGTCWWEQYCILFCRGLKE 510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKND---STGIQNRAGVLFFLTTN 436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LDSSTANAVLLLLKRMSKQGRTIIFSIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALG 275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LIEKLAEIYVNSSFYKETKAELHQLS-GGEKKKKITVFKE-----ISYTTSFCHQLRW 379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9
                                                                                                                                                                                                                                                                                                                                                                                                                                     . ., IEA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RRHEYPSWL-----RVTQVLSTAV--ILGLLWW--QSDIRTPMGLQDQAGLLFFIAVF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                QCFSSV-SAVELFVVEKKI.FIHEYISGYYRVSSYFLGKLISDLLPMTMLPSIIFTCIVYF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MIGLKPKADA FFVMMFTLMMVAYSASSMALA I AAGOSVVSVATLLMTI CFVFMMI FSGLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VNLTTIASWLSWLQYFSIPRYGFTALQHNEFLGQNFCPGLNATGNNPCNYATCTGEEYLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          --MRI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 37 LSFHNICYRVKLKSGFLPCRKPVEKEILSNINGIMKPG-LNAILGPTGGGKSSLLDVLAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EXMERINRVIQELGLDKVADSKVGTQFIRGVSGGERKRTSIGMELITDPSILFLDEPTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         YFESAGYHCEAYNNPADFFLDIINGDSTAVALNREEDFKA-----TEIIEPSKQDKP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RKDPSGLSGDVLINGAPRPANFKCNSGYVVQDDVVMGTLTVRENLQFSAALRLATTWTNH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     66; Gaps
                                                                                       Yamada K., Banh J., Chan M.M., Chang C.H., Chang E., Dale J.M., Deng J.M., Goldsmith A.D., Lee J.M., Onodera C.S., Quach H.L., Tang C., Toriumi M. Wu H.C., Yamamura Y., Yu G., Bowser L., Carninci P., Chen H., Cheuk R., Hayashizaki Y., Ishida J., Jones T., Kamiya A., Karlin-Neumann G., Kawai J., Kim C., Lam B., Lin J., Miranda M., Narusaka M., Nguyen M., Palm C.J., Sakurai T., Satou M., Theologis A.,
                                                                                                                                                                                                                                                                           "Arabidopen Reading Frame (ORF) Clones.";

"Arabidopen Reading Frame (ORF) Clones.";

"Bubit Av059787; AAL24135.1;

"BMBL; Av114068; AAM45116.1;

"R EMBL; Av114068; AAM45116.1;

"A GO; GO:0016020; C:membrane; IEA.

"GO; GO:0016020; F:ATP-binding; IEA.

"GO; GO:00064109; F:ATP-binding cassette (ABC) transporter acti...;

"A GO; GO:00064109; F:TATP-binding cassette."

"A GO; GO:0006410; F:TATP-binding cassette."

"A GO; GO:00064109; F:TATP-Binding."

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 751;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
gene At5g06530 (GI:15240083).";
to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6792,VKKVPV--FISWIRYLSFNYHTYKLLLKVQY--QDFAVSING---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match

24.1%; Score 809; DB 10; I
Best Local Similarity 33.9%; Pred. No. 1.7e-47;
Matches 216; Conservative 110; Mismatches 245;
          cDNA of
                            Submitted (OCT-2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Mac.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       •
```

원 ò 셤 ઠે d à d ò

셤 ਨੇ

ઠ

```
RTIIFSIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFL 295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ----VPGREEVTRHT------IDTVCTAFAKSEIGCRIAAEAENALYN 381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EKK-------KKITVFKEISYTTSFCHOLRWVSKRSFKNLLGNPOASIAQIIVTV 403
                                                                                                                                                                                                                                                                                                                                                                                     Bombyx mori (Silk moth).

Bukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota;

Neoptera; Endopterygota; Lepidoptera; Glossata; Ditrysia; Bombycoidea;

Bombycidae; Bombyx.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              177 KVGTQ-FIRGVSGGERKRTSIGNELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSKQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DIINGDSTAVALNREEDFKATEIIEPSKODKPLIEKLAEIYVNSSFYKETKAELHQLSGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61 KEILSNINGIMKPG-LNAILGPTGGGKSSLLDVLAARKDPSGL--SGDVLINGAP-RPAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             117 FKCNSGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  of a silkworm ABC transporter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      transporter acti.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 687;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
24.1%; Score 808; DB 5; Length 68
Best Local Similarity 32.5%; Pred. No. 1.7e-47;
Matches 200; Conservative 108; Mismatches 248; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEĞUENCE FROM N.A.
STRALN-EAIn-Shiu X Sho-wa;
MEDLINE-20469043; PubMed=11016828;
Abraham E.G., Sezutsu H., Kanda T., Sugasaki T., Shimada
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SMART; SM00382; AAA; I.
TIGRFAMS; TIGR00955; 3a01204; 1.
PROSITE; PS00211; AEC_TRANSPORTER_1; 1.
PROSITE; PS50893; AEC_TRANSPORTER_2; 1.
ATP-binding; Transmembrane; Transport.
SEQUENCE 687 AA; 75835 MW; ECD336333F0981AB CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FAMILY
                                                                                                                                                                                                                                                         01-0CT-2000 (TrEMBLrel. 15, Created)
01-0CT-2000 (TrEMBLrel. 15, Last sequence update)
01-0CT-2003 (TrEMBLrel. 25, Last annotation update)
ATP dependent transmembrane transporter protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Identification and characterization of a silkworm gene homologous to Drosophila white.";

Nol. Gen. Genet. 264:11-19(2000).

Nol. Gen. Genet. 264:11-19(2000).

Nol. Gen. Genet. 264:11-19(2000).

Nol. Gen. Genet. 264:11-19(2000).

EMBL, AF229609; AAF61560.1;

GO; GO:00056219; FiATP binding; IEA.

GO; GO:0005619; F:ATP-binding; IEA.

GO; GO:000610; P:transport; IEA.

InterPro; IPR003593; AAA_ATPase.

InterPro; IPR003593; AAA_ATPase.

InterPro; IPR003594; Pigment_permease.

PEam; PF0000524; Pigment_permease.

PEam; PF0000554; Pigment_permease.

PEAM; PF000005; ABC_transporter; 1.

PRODOM; PB0000006; AABC_transporter; 1.
                                  616 KOGIDLSPWGLWKNHVALACMIVIFLTIAYLKLLFLK
                                                                                                                                                                                                       Ä
```

235

g

셤 à g ò 셤

δ

75721 MW; D02DFEE299A25592 CRC64;

687 AA;

```
179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          535
SEQUENCE
                                            Query Match
                                                                         Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Search
Job tim
g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         염
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                               HNEFLG-----QNFCPGLNATGNNPCNYATCTGEEYLVKQGIDLSPWGLWKNHVALA 634
                                                                                                                                                                        502 MYRADVYFLSKTLABAPVFATIP-LVFTTIAYYMIGLNPDFKRFFIASGLAALVTNVATS 560
                                                                                                                                                                                                                                                MALAIAAGQSVVSVATLIMTICFVFMMIFSGLLVNLTTIASWLSWLQYFSIPRYGFTALQ 582
                                                                                                                                                                                                                                                                             ----TCPASGQVVLETLSFSQDDFAMDVVNMI 665
                                               VLGLVIGAIYFGLKNDSTGIQNRAGVLFFLTTNQCFSSVSAV-ELFVVEKKLFIHEYISG 462
                                                                                                                                              463 YYRVSSYFLGKLLSDLLPMTMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMMVAYSASS 522
382 ERKIQAGLADAPWAMSSTTRAGRSPYKASWCTQFRAVLWRSWLSVTKEPMLIKVRFLQTI 441
                                                                                    GTRAIN=SIM;
MEDLINE=96170784; PubMed=8601488;
MEDLINE=96170784 but with the conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal conversal 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Kirby D.A., Stephan W.; Stephan W.; Stephan W.; Stephan W.; Submitted (UTL-1996) to the BMBL/GenBank/DDBJ databases. Submitted (UTL-1996) to THB ABC TRANSPORTER FAMILY.

EMBL; U64875; AAB06578.1; ---
F1yBases; FBGRO012902; Dsim\w.

GO; GO:0016620; C:membrane; IEA.

GO; GO:0005524; F:ATP binding; IEA.

GO; GO:0000166; F:ATP-binding cassette (ABC) transporter acti.

GO; GO:0000166; F:MCP-binding cassette (ABC) transporter acti.

GO; GO:0000166; F:MCP-binding; IEA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Drosophila simulans (Fruit fly).
Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota;
Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha;
Ephydroidea; Drosophilidae; Drosophila.
NCBI_TaxID=7240;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         687 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    InterPro; IPR005284; Pigment permease.
PEam; PP001005; ABC tran; 1.
ProDom; PD000006; ABC transporter; 1.
SMART; SM0382; AAA; 1.
TIGRFAMS; TIGR00955; 3801204; 1.
PROSITE; PS00211; ABC TRANSPORTER 1; 1.
PROSITE; PS50893; ABC TRANSPORTER 2; 1.
ATP-binding; Transport.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Interpro; IPR001593; AAA ATPase.
Interpro; IPR003439; ABC_transporter.
Interpro; IPR005284; Pigment_permease.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRT;
                                                                                                                                                                                                                                                                                                                                                                                                 621 INOWAGVETIACTRENF----
                                                                                                                                                                                                                                                                                                                                                                                                                                                   635 CMIVIFLTIAYLKLLF 650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LLFVGFRFLAYLALLW 681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-FEB-1997 (TrEMBLrel. 02, 01-FEB-1997 (TrEMBLrel. 02, 01-OCT-2003 (TrEMBLrel. 25,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRAIN=SIM;
Kirby D.A., Stephan W.;
Genetics 0:0-0(0).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRAIN-SIM;
                                                                                                                                                                                                                                                  523
                                                    404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            094960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 15
Q94960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                    à
                                                                                                                                                 ઠે
                                                                                                                                                                                             g
                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                    ઠ
```

```
17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       65 SNINGIMKPG-LINAILGPTGGGXSSLLDVLAARKDPSGL----SGDVLINGAPRPA-NFK 118
                                                                                                                                                                                                                                                                                                                                                       292
                                                                                                                                                                                                                                                                                                                                                                                                                   358 KKKITVFKEISYT--TSFCHQLRWYSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFG 415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LSDLLPMIMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGQSVV 534
                                                                                                                    113
                                                                                                                                                                                                                                                                                                                                                                                            238 IIPSIHOPRYSIFKLFDSLTLLASGRIMFHGPAQEALGYFESAGYHCEAYNNPADFFLDI 297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       298 INGDSTAVALNREEDFKATEIIEPSKODKPLIEKLAEIYVNSSFYKETKAELHOLSGGEK 357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              416 LKNDSTGIQNRAGVLFFLTTNQCFSSVSA-VELFVVEKKLFIHEYISGYYRVSSYFLGKL 474
                                                                               64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SVATLIMTICEVEMMI FSGLLVNLTTIASWLSWLQYFSI PRYGFTALOHNEFLGQNFCPG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         392 LEKPLEQPENGYTYKATWFWQFRAVLMRSWLSVLKEPLLVKVRLIQTIWVAILIGLIFLG
                                                                                                       74 NMDIFGAVNQ------PGSGWRQLVNRTRGLFCNERHI-------PAPR---KHLL
                                                                                                                                                                                5 NVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVEKEIL
                                                                                                                                                                                                                                      119 CNSGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHBKNBRINRVIQBLGLDKVADSKV
                                                                                                                                                                                                                                                                                                               GTQ-FIRGVSGGERKRISIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSKQGRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -LNATGNNPCNYATCTGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKL 648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         619
                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60;
24.0%; Score 806; DB 5; Length 68 llarity 32.1%; Pred. No. 2.4e-47; Conservative 133; Mismatches 252; Indels
                        Local Similarity
es 210; Conserv
```

earch completed: March 23, 2004, 18:31:03 ob time : 49 secs

protein

Run on: ĕ

Sequence:

Searched:

Database

Result No.

```
024739 drosophila
095342 homo sapien
P4468 synechocyst
0820h0 anabaena sp
099758 homo sapien
P66903 bacillus su
P62914 escherichia
02882 archaeoglob
p22638 anabaena sp
000449 drosophila
082vt5 nitrosomona
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JUNE OF 198-655 FROM N.A.

SEQUENCE OF 198-655 FROM N.A.

SEQUENCE OF 198-655 FROM N.A.

TISSUB-Placenta;

TISSUB-Placen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       [4]
SEQUENCE FROM N.A.
Skage K., Tsukahara S., Sugiyama T., Asada S., Ishikawa E., Tsuruo T.,
Sugimoto Y.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ABC2 HUMAN STANDARD; PRT; 655 AA.
29UNG0; 095374; Q9BY73; Q9NUS0;
16-OCT-2001 (Rel. 40, Creted)
28-FEB-2003 (Rel. 41, Last sequence update)
28-FEB-2003 (Rel. 41, Last sequence update)
ATP-binding cassette, sub-family G, member 2 (Placenta-specific ATP-binding cassette transporter) (Breast cancer resistance protein).
ABCG2 OR ABCP OR BCRP OR BCRP1.
Homo sapiens (Human).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
TISSTEPIA.centa;
MEDILINE=99065313; PubMed=9850061;
Allikmets R., Schriml L.M., Hutchinson A., Romano-Spica V., Dean M.;
"A human placenta-specific ATP-binding cassette gene (ABCP) on
chromosome 4q22 that is involved in multidrug resistance.";
cancer Res. 58:5337-5339(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
TISSUB=Breast cancer;
MEDLINE=99080071; PubMed=9861027;
MEDLINE=99080071; PubMed=20 L.V., Krogmann T., Gao Y., Rishi A.K.,
Ross D.D.;
"A multidrug resistance transporter from human MCF-7 breast cancer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ERRATUM.
Doyle L.A., Yang W., Abruzzo L.V., Krogmann T., Gao Y., Rishi A.K.,
Ross D.D.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Breast cancer resistance protein constitutes a 140-kDa complex as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Buteleostomi;
Mammalia; Butheria; Primates; Catarrhini; Hominidae; Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       homodimer.";
Submitted (MAR-2001) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Proc. Natl. Acad. Sci. U.S.A. 95:15665-15670(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       toss D.D.;
Proc. Natl. Acad. Sci. U.S.A. 96:2569-2569(1999).
                BROW_DROVI
AB11 HUMAN
CYSA_SYNY3
CYSA_BYNY3
CYSA_BYNY3
CYSA_BYNY3
LYAFA_BACSU
MALK_ECOLI
LIVE_ARCEU
HURP_ARCEU
CYSA_NITEU
675
1321
3321
3321
1704
246
236
1302
362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NCBI_TaxiD=9606;
cells."
  drosophila
ceratitis c
lucilia cup
anopheles g
anopheles a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    mus musculu
saccharomyc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         drosophila
homo sapien
caenorhabdi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  candida alb
candida alb
candida alb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 homo sapien
homo sapien
mus musculu
caenorhabdi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       homo sapien
rattus norv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     saccharomyc
candida alb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     mus musculu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             rattus norv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         saccharomyc
schizosacch
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         saccharomyc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     saccharomyc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    saccharomyc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      homo sapien
mus musculu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           saccharomyc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       saccharomyc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            saccharomyc
                                                                                                                                                                                        March 23, 2004, 18:23:53; Search time 18 Seconds (without alignments) 1894.775 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed; and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                US-09-961-086-1
3352
1 MSSSNVEVPIPVSQGNTNGF......MIVIFLTIAYLKLLFLKKYS 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         $25571 | P25571 | P25571 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10090 | P10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      09ung0
099p81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         141681
                            GenCore version 5.1.6
Copyright (c) 1993 - 2004 Compugen Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   141681 segs, 52070155 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ABG8—MOUSE
YOHS, YEAST
SCRT—HOWAN
ABG8—HOWAN
YOSC CAREL
SRNQ—YEAST
SRNQ—YEAST
ODRS—XEAST
CDRS—CANNA
YN99—YEAST
PDRK—YEAST
PDRK—YEAST
PDRK—YEAST
CDRS—CANNA
YN99—YEAST
PDRK—YEAST
CDRS—CANNA
YN99—YEAST
PDRK—YEAST
CDRS—CANNA
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
YN99—YEAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            YEAST
DROME
CERCA
LUCCU
ANOGA
HUMAN
HUMAN
HUMAN
HUMAN
HUMAN
HUMAN
HUMAN
HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                     sw model
                                                                                                                                                                                                                                                                                                                                                                                                         BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WHIT ABG1 ABG1 ABG5
                                                                                                                                     protein search, using
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SwissProt_42:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query
Match Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            173339
83339
835.5
835.5
835.5
835.5
835.5
835.5
835.5
835.5
835.5
835.5
835.5
835.5
835.5
835.5
835.5
835.5
835.5
835.5
835.5
835.5
835.5
835.5
835.5
835.5
835.5
835.5
835.5
835.5
835.5
835.5
835.5
835.5
835.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           rotal number of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score
                                                                                                                                                                                                                                                                                                   Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                         Scoring table:
```

```
121
                                                                                                                                                                                                                                                                               181
                                                                                                                                                                                                                                                                                                                                                                     241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           421
                                                         61
                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                            241
                                                                                                                                                                                                                                                                                                                                                                                                                  301
                                                                                                                                                                                                                                                                                                                                                                                                                                                           301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          361
                                                                                                 61
                                                                                                                                              121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ABCG3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ઠ
                                                                                                                                            ઠે
                                                                                                                                                                                셤
                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                             유
                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                a
                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ਨੇ
                                                      à
                                                                                            셤
                                                                                                                                                                                                                                                                                                                     This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the Buropean Bioinformatics Institute. There are no restrictions on its work by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                              Schmitz G., Languann T., Haimerl S.,
"Role of ABCG1 and other ABCG family members in lipid metabolism.";
"Role of ABCG1 and other ABCG family members in lipid metabolism.";
J. Lipid Ree. 42:1513-1520(2001).

-:- FUNCTION: Xenobiotic transporter that appears to play a major role in the multidrug resistance phenotype of a specific MCF-7 breast cancer cell line. When overexpressed, the transfected cells become resistant to mitoxantrone, damnorubicin and doxorubicin, display diminished intracellular accumulation of daunorubicin, and manifest an ATP-dependent increase in the efflux of rhodable).
-:- SUBCELLULAR LOCATION: Integral membrane protein (Probable).
-:- SIMILARITY: Belongs to the ABC transporter family. ABCG (White)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GO: GO:0016021; C:integral to membrane; TAS.
GO: GO:005524; F:ATP binding; TAS.
GO: GO:0005215; F:ATP-binding casette (ABC) transporter acti.
GO: GO:0005215; F:Tansporter activity; TAS.
GO: GO:0005215; F:xenobiotic-transporting ATPase activity; TAS.
GO: GO:0006515; F:xenobiotic-transporting ATPase activity; TAS.
GO: GO:0006610; F:transport; TAS.
InterPro; IPR03593; AAA ATPase.
InterPro; IPR03439; ABC_transporter.
Pfam; PF000005; ABC_transporter.
ProDow: PD000006; ABC_transporter: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99.6%; Score 3139; DB 1; Length 655; 99.5%; Pred. No. 6e-222; ive 1; Mismatches 2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CYTOPLASMIC (POTENTIAL).
ATP (POTENTIAL).
N-LINKED (GLCNAC. .) (POTENTIAL).
N-LINKED (GLCNAC. .) (POTENTIAL).
N-LINKED (GLCNAC. .) (POTENTIAL).
N-A (IN REP. 2 AND 4).
E -> Q (IN REP. 2 AND 4).
F -> S (IN REP. 1).
MISSING (IN REP. 2).
M. SAGD3511DC5CCEO CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LLULAR (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EXTRACELLULAR (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EXTRACELLULAR (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               POTENTIAL.
CYTOPLASMIC (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CYTOPLASMIC (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PROSITE; PSG0211; ABC_TRANSPORTER 1; FALSE_NEG.
PROSITE; PS50893; ABC_TRANSPORTER 2; 1.
ATP-binding; Transmembrane; Transport.
CYTOPLASMIC (POTENTIAL).
TRANSMEM 396 416 POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          POTENTIAL.
EXTRACELLU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5; ABC transporter; 1. AAA; 1.
REVIEW.
MEDLINE=21474438; PubMed=11590207;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; AF103796; AAD09188.1; -.
EMBL; AF088951; AAC97367.1; -.
EMBL; AB056867; BAB39212.1; -.
EMBL; AK002040; BAA92050.1; -.
Genew; HGNC:74; ABCG2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                72343 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              24
166
208
315
482
655 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SM00382;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DOMAIN
TRANSMEM
DOMAIN
NP BIND
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CONFLICT
CONFLICT
CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DOMAIN
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DOMAIN
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DOMAIN
SOLUTION OF THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATES AND THE STATE
```

```
540
                                                                                                                                                                                                                                                                                                           DSTAVALNREEDFKATEIIEPSKODKPLIEKLAEIYVNSSFYKETKAELHOLSGGEKKKK 360
                                                                                                                                                                                                                                                                                                                                            360
                                                                                                                                                                                                                                                                                                                                                                           420
                                                                                                                                                                                                                                                                                                                                                                                                          420
                                                                                                                                                                                                                                                                                                                                                                                                                                           480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         540
                                                                                                                                                                                                                                                                         SIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING 300
                                                                                                                                                                               240
                                                                                                                                                                                                                                               300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   361 ITVPKEISYTTSFCHQLRWVSKRSFKNLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGIQNRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            481 MRMLPSIIFTCIVYFMLGLKPKADAFFVWMFTLMWVAXSASSWALAIAAGQSVVSVATLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        541 MTICEVEMMIFSGLLVNLTTIASWLSWLQYFSIPRYGFTALQHNEFLGQNFCPGLNATGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                541 MTICEVEMMIFSGLLVNLTTIASWLSWLQYFSIPRYGFTALQHNEFLGQNFCPGLNATGN
SGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGT
                                                                                                                                                                                                SIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING
                                                                                                                                                                                                                                                                                                                                                                             ITVFKEISYTTSFCHQLRWYSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDS
                                                                                                                                                                                                                                                                                                                                                                                                                                           TGIONRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         481 MTMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMMVAYSASSWALAIAAGQSVVSVATLL
                                                                                                                                        QFIRGVSGGERKRISIGMELLIDPSILFLDEPTIGLDSSTANAVLLLLKRMSKQGRIIF
                                                     KEILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -:- SUBCELLULAR LOCATION: Integral membrane protein (Probable).
-:- TISSUE SPECIFICITY: Highest levels of expression in thymus and spleen. Detetected in lung and small intestine.
-:- SIMILARITY: Belongs to the ABC transporter family. ABCG (White)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        601 NPCNYATCTGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKLLFLKKYS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1, Last sequence update)
1, Last annotation update)
e, sub-family G, member 3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ą
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ABG3 WOUSE STANDARD; Fra 299FB1; 28-FEB-2003 (Rel. 41, Last seque 28-FEB-2003 (Rel. 41, Last seque 28-FEB-2003 (Rel. 41, Last annot ATP-binding cassette, sub-famil)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (Mouse)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   transporter.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mus musculus
```

Conservative

Similarity

Best Local Sim Matches 652;

Query Match

ö 9

Gaps

ö

SOLUTION SOL

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its mose by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities a placame agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
SEQUENCE FROM N.A.
MEDILINE-29217849; PubMed=1626432;
MEDILINE-29217849; PubMed=1626432;
Skala J., Purnelle B., Goffeau A.;
"The complete sequence of a 10.8 kb segment distal of SUF2 on the right arm of chromosome III from Saccharomyces cerevisiae reveals right arm of chromosome III from Saccharomyces, Cerevisiae reveals seeven open reading frames including the RVS161, ADP1 and PGK genes:"; Yeast 8:409-417(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          least error (Potential).
-- SUBCELJULAR LOCATION: Integral membrane protein (Potential).
-- SIMILARITY: Belongs to the ABC transporter family. MDR subfamily.
                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.

MEDLINE-92160395; PubMed=1789009;

Purnelle B., Skalu J., Goffeau A.;

"The product of the YCR105 gene located on the chromosome III from Saccharomyces cerevisiae presents homologies to ATP-dependent
                                                       TGNNPC-NYATCTGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKLLFLK
                                                                            590 BEVSRCHNYVICTGEEFIMIGGIDLSSWGFWENHLALVCTMIILLTITYVQLLQVK
                                                                                                                                                                                                                                                            16-OCT-2001 (Rel. 40, Last annotation update)
Probable ATP-dependent permease precursor.
ADP1 OR YCR011C OR YCR11C OR YCR105.
Saccharomyces cerevisiae (Baker's yeast)
Bukaryota; Fungi; Ascomycota; Saccharomycotina; Saccharomyceteles;
Saccharomycetales; Saccharomycetaces;
NCBI_TaxID=4932;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro; Iranovariant I.
Prodom; Prodom; ABC transporter; I.
SWART; SW00382; AAA; I.
SWART; SW00311; ABC TRANSPORTER 1; I.
PROSITE; PS50831; ABC TRANSPORTER 2; I.
ATP-binding; Transmembrane; Glycoprotein; Transport; Signal.
SIGNAL 1 25 PROBABLE ATP-DEPENDENT PERMEASE.
26 1049 "..." 'DV SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Germonline; 138916; --
SGD, 80000604; ADPI.
InterPro; IPR003593; AAA_ATPase.
InterPro; IPR003593; AAA_ATPase.
InterPro; IPR003439; ABC_transporter.
                                                                                                                                                                                                                       (Rel. 22, Created)
(Rel. 22, Last sequence update)
(Rel. 40, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         POTENTIAL.
POTENTIAL.
POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL; X59720; CAA42328.1; -.
                                                                                                                                                                                        STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (east 7:867-872(1991).
                                                                                                                                                                                                                           01-MAY-1992
01-MAY-1992
                                                                                                                                                                                        YEAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CHAIN
NP BIND
TRANSMEM
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TRANSMEM
TRANSMEM
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TRANSMEM
TRANSMEM
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      permeases
                                                               298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TRANSMEN
                                                                                                                                                                                            ਨੇ
                                                                                                g
                                  This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bicinformatics and the EMBL outstation-the European Bicinformatics Institute. There are no restrictions on its most job non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@lsb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GPSNILDTEBDGHEDDKYEELFERQYQ---VTGKLANMYAQSPLYSETRAILDQLLGEQK 350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KEILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61 IERLSNISGIMKPGLNAIMGPQDGSRSLLLDVLAARRDPRGLSGDILINGKPRPANFKCT 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SIHQPRYSIFKLFDSLTLLASGRIMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QFIRGVSGGERKRISIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSKQGRTIIF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      301 DSTAVALNRE---EDFKATEIIEPSKODKPLIEKLAEIYVNSSFYKETKAELHQLSGGEK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          358 KKKITVFKEISYTTSFCHOLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NDSTGIQNRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LL PMIMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGQSVVSVA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            538 TLLMTICFVFMMIFSGLLVNLTTIASWLSWLQYFSIPRYGFTALQHNEFLGQNFCPGLNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 1; Length 650;
               CAUTION: Seems to have a defective ATP-binding region.
                                                                                                                                                                                                                                                                                                                                           1 (POTENTIAL).
EXTRACELLULAR (POTENTIAL).
2 (POTENTIAL).
CYTOPLASMIC (POTENTIAL).
3 (POTENTIAL).
EXTRACELLULAR (POTENTIAL).
4 (POTENTIAL).
CYTOPLASMIC (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity 55.3%; Pred. No. 3.2e-115;
Matches 363; Conservative 104; Mismatches 174; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S (POTENTIAL).
EXTRACELLUTAR (POTENTIAL)
6 (POTENTIAL).
CYTOPLASMIC (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          86A5ABE4DD26971C CRC64;
                                                                                                                                                                                                                                                                                                                       CYTOPLASMIC (POTENTIAL).
                                                                                                                                                                                                                                                                     FALSE NEG
                                                                                                                                                                                                                                                                                                                                         (POTENTIAL)
                                                                                                                                                                                                               MGD; MGI:1351624; Abcg3.
InterPro; IPR003439; ABC_transporter.
                                                                                                                                                                                                                                          Pfam; PF00005; ABC_tran; 1.
PROSITE; PS0021; ABC_TRANSPORTER 1;
PROSITE; PS50893; ABC_TRANSPORTER_2;
Transmembrane; Transport.
                                                                                                                                                                                                EMBL; AF324242; AAK14241.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              73623 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                 DOMAIN
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              174
                                                                                                                                                                                                                                                                                                                                                            DOMAIN
TRANSMEM
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TRANSMEM
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181
                                                                                                                                                                                                                                                                                                                                                                                                                                     DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                    TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DOMAIN
```

8 6 8 6 8 6 8 6

8 8 8

8

ઠ

a &

10-OCT-2003 (Rel. 42, Last annotation update)

```
997 YGLNIEVPG------ATILSTFGFVVQNLVFDIK------ILALFNVVFLIM 1036
                                                                                                                                                                                                  402
                                                                                                                                                                                                                                                                                                                                                                                                       642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             818
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KEILSNINGIMKPG-LNAILGPIGGGKSSLLDVLAARKDPSGLSGDVLINGAPRP-ANFK 118
                                                                                                                                                                                                                                                     462
                                                                                                                                                                                                                                                                          119 CNSGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKV 178
                                                                                                                                                                                                                                                                                                                                                                                                                               ----INGDSTAV 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                306 ALNREEDFKATE----IIEPSKODKPLIEKLAEIYVNSSFYKETKAELHQ-LSGGEKKKK 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                II--VFKEISYTTSFCHOLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKN 418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DSTGIONRAGVLFFLTTNOCFSSVSAVELFVVEXKLFIHEYISGYYRVSSYFLGKLISDL 478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  479 LPMTMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGQSVVSVAT 538
                                                                                                                                                                           09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VINGDLPTGQQSAGFLQQLSILNSRSFKNMYRNPKLLLGNYLLTILLSLFLGTLYYNVSN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   587 LGQNF-CPGLNATGNNPCNYATCTGEEYLVKQGI--DLSPWGLWKNHVALACMIVIFLTI
                                                                                                                                                                                          TFEAGPOGKRRRIRNISDLEAGTDTNDIDNTIHQTTFTSSDGTTQREWAHLAAHRDEIRS
                                                                                                                                                                           1 MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE
                                                                                                                                                                                                                                                                                                                             GTOFIRGVSGGERKKTSIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSKQ-GRT
                                                                                                                                                                                                                                                                                                                                                                              IIFSIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LLMTICFVFMMIFSGLLV---NLTTIASWLSWLQYFSIPRYGFTALQHNEF-----
N-LINKED (GLCNAC. . .) (POTENTIAL).
N-LINKED (GLCNAC. . .) (POTENTIAL).
N-LINKED (GLCNAC. . .) (POTENTIAL).
N-LINKED (GLCNAC. . .) (POTENTIAL).
N-LINKED (GLCNAC. . .) (POTENTIAL).
N-LINKED (GLCNAC. . .) (POTENTIAL).
N-LINKED (GLCNAC. . .) (POTENTIAL).
N-LINKED (GLCNAC. . .) (POTENTIAL).
N-LINKED (GLCNAC. . .) (POTENTIAL).
N-LINKED (GLCNAC. . .) (POTENTIAL).
N-LINKED (GLCNAC. . .) (POTENTIAL).
N-LINKED (GLCNAC. . .) (POTENTIAL).
                                                                                                                                                   115;
                                                                                                                        Length 1049;
                                                                                                                                                   Indels
                                                                                                                           24.9%; Score 835.5; DB 1;
larity 30.5%; Pred. No. 1.4e-49;
Conservative 134; Mismatches 257;
                                                                                                    117231
  50
1165
1165
221
815
960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1037 GYLALKWI 1044
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       644 AYLKLLFL 651
  50
114
111
115
116
122
815
815
935
960
971
971
971
                                                                                                                                        Local Similarity
es 222; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                   1 1 1 1 1 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     539
             CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          703
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   419
                                                  CARBOHYD
                                                                                       CARBOHYD
                                                                                                                                                                                                      355
                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                      403
                                                                                                                                                                                                                                                                                                                                                        523
                                                                                                                                                                                                                                                                                                                                                                                238
                                                                                                                                                                                                                                                                                                                                                                                                         583
                                                                                                                                                                                                                                                                                                                                                                                                                                                          643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           819
                                                                                                                                                                                                                                                                                                        463
                                                                                                                                                                                                                                                                                                                                179
                                                                                                                                                                                                                                                                                                                                                                                                                                  298
                                                                            CARBOHYD
                                                                                                                              Query Match
                                                                                                                                          Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ठे
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
    셤
                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                       엄
                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                     B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                              ઠ
                                                                                                                                                                                                                                                                              ò
```

WHIT_DROME STANDARD; PRT; 687 AA P10050; Q97X32; 01-MAR-1989 (Rel. 10, Created) 01-NOV-1991 (Rel. 20, Last sequence update)

```
RC SEQUENCE RROW N.A.

RC STEALIN-BERKeley;

RAZIN-BERKeley;

RAZIN-BERKeley;

RAZIN-BERKeley;

RAZIN-BERKELEY;

RAGORGY R.A. Lewis S.E., Holt R.A., Evans C.A., Gocayne J.D.,

RAGORGY R.A., Lewis S.E., Holt R.A., Brand Q., Chen L.X.

Radorn R.C., Rogers Y.H.C., Blazel; R.G., Champe M., Petiffer B.D.,

Radorn R.C., Rogers Y.H.C., Blazel; R.G., Champe M., Petiffer B.D.,

Randon R.C., Rogers Y.H.C., Blazel; R.G., Champe M., Petiffer B.D.,

Randon R.C., Rogers Y.H.C., Blazel; R.G., Champe M., Petiffer B.D.,

Randon R.C., Rogers Y.H. G., Helt G., Melbon C.R., Miklos G.L.G.,

Randon R.C., Boughari A., An H.-J., Andrews-Farankoch C., Baldwin D.,

Rador R.M., Basu A., Bascandale J., Bayraktaroglu L., Beasley E.M.,

Rador R.M., Basu A., Barden B., Bhandari D., Belbakov S.M.,

Rador R.M., Banca P.V., Berman B.P. Bhandari D., Belbakov S.M.,

Radorkova D., Bocchan M.R., Bouck J., Barchstein P., Dew I., Diet S.M.,

Radorkova D., Bocchan M.R., Bouck J., Barchstein P., Dew I., Diet S.M.,

Radorkova D., Bolchier A., Dong Z., Mays A.D., Dew I., Diet S.M.,

Radorkova D., Borchell J.H., Gu Z., Glabart W.M., Glasser K.,

Radorin K.J., Bvangelista C.C., Ferraz C., Ferriera S., Pleischman W.,

Rador F., Gorrell J.H., Gu Z., Glabar M., Harris M.,

Rador F., Gorrell J.H., Karpen G.H., Ke Z., Kannison J.A., Harris M.,

Alali M., Kalush F., Karpen G.H., Ke Z., Kannison J.A.,

Rador P., Las K. Woltra C.D., Krafte C., Karitz S., Kalp D., Lai Z.,

Lakeko P., Las K., McHresh T.C., McCleod M.P., McDrine B.,

Rador D., Milshina N.V., Mobarry C., Morris J., Mostrefi A.,

Rount S.M., Mow M., Murphy B., Murphy L., Murshy D., Malson D.L.,

Rador D. R., Wallen R., Samders R., Venter E., Shen H.,

Spier B., Spier B., Samders R., Venter E., Shen H.,

Shies B.C., Siden-Kaman D.A., Weinscock G.M., Weinsenbach J.,

Milliams S.M., Moyens E.M., Woodage T., Wolley K., Zhong S., Zhu X., Smith H.O.,

Radorn R., Woodage T., Wolley K.W., Zhou K., Zhu X., Smith H.O.,

Science 287:2185-2195 (2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                "Dual-tagging gene trap of novel genes in Drosophila melanogaster.";
Genetics 157:727-742(2001)
                                                                                                                                                                                                                                                  gene.";
                                                                                                                                                                                                                                                                                      [2]
SEQUENCE FROM N.A.
MEDLIA3865; PubMed=6084717;
MEDLIA3865; PubMed=6084717;
O'Hare K., Murphy C., Levis R., Rubin G.M.;
"DNA sequence of the white locus of Drosophila melanogaster.";
"DNA sequence of the white locus of Marophila melanogaster.";
"Mol. Biol. 180:437-455(1984).
                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
MEDLINE-21100348; PubMed=11156992;
Lukacsovich T., Asztalos Z., Awano W., Baba K., Kondo S., Niwa
                                          Drosophila melanogaster (Fruit fly).

Bukaryota, Metazoa, Arthropoda, Hexapoda, Insecta, Fterygot
Bobpera, Endopterygota, Diptera, Brachycera, Muscomorpha,
Bobydroidas, Drosophilidae, Drosophila.
                                                                                                                                                                                                                                                  melanogaster white
                                                                                                                                                                                               TISSUE-Head;
MEDLINE=90221897; PubMed=2109311;
Pepling M., Mount S.M.;
"Sequence of a cDNA from the Drosophila '
Nucleic Acids Res. 18:1633-1633(1990).
                  White protein.
W OR EG:BACN33B1.1 OR CG2759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Yamamoto D.;
                                                                                                                                                                                             UE=Head
```

```
-:- STBURITY: Heterodimer of white with either brown or scarlet.
-:- SUBCELLULAR LOCATION: Integral membrane protein.
-:- SUMILARITY: Belongs to the ABC transporter family. MDR subfamily.
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bloinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@15b-sib.ch)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         L -> R (IN REF. 4 AND 5).
VGAQCPINYNPADFYVQVLAVVPGREIESRDRIAKIC ->
ITLHLNSYPAWVPSVLPTIRRIFTYRCWPLCPDGRSSPVI
MEDLINE=20196011; PubMed=10731137;
Benos P.V., Gatt M.K., Ashburner M., Murphy L., Harris D.,
Barrell B.G., Ferraz C., Vidal S., Brun C., Demailles J., Cadieu E.,
Dreano S., Gloux S., Lelaure V., Mottier S., Galibert F., Borkova D.,
Minana B., Kafatos F.C., Louis C., Siden-Kiamos I., Bolshakov S.,
Rapagiannakis G., Spanos L., Cox S., Madueno E., de Pablos B.,
Modolell J., Peter A., Schoettler P., Werner M., Mourkioti F.,
Beinert N., Dowe G., Schoettler P., Werner M., Mourkioti F.,
Callister D.M., Campbell L.A., Darlamitsou A., Henderson N.S.,
Glover D.M.; Salles C., Tait E.A., Valenti P., Saunders R.D.C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GDSGA -> LIFEIPYHCRVTAD (IN REF. 2 AND
                                                                                                                                                                                                                                                                                                                                                                                                 Genetics 122:595-606(1989).
-!- FUNCTION: Part of a membrane-spanning permease system necessary for the transport of pigment precursors into pigment cells responsible for eye color. White dimerize with brown for the
                                                                                                                                                                                                                                                                                                 SECUENCE OF 224-331 FROM N.A. MEDILINE-89339145, WEDILINE-89339145, PubMed-2503416, Tearle R.G., Belote J.M., McKeown M., Baker B.S., Howells A.U., "Cloning and characterization of the scarlet gene of Drosophila
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              transport of guanine and with scarlet for the transport of
                                                                                                                                                                                                         "From sequence to chromosome: the tip of the X chromosome of melanogaster.",
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL; X51749; CAA36038.1; -...
EMBL; X02974; CAA36716.1; -...
EMBL; AB0034159; BAA78210.1; -...
EMBL; AB003425; AAF45826.1; -...
EMBL; AL133506; CAB5847.1; -...
EMBL; X76202; CAA57795.1; -...
EMBL; X76202; CAA57795.1; -...
EMBL; X76203; PYFFW

R PLYBASe; FBGM003996; W.
CGO; GO:0004808; F:transmembrane receptor activity; NAS.
CGO; GO:0006727; P:ommochrome biosynthesis; IMP.
InterPro; IPR003599; AAA ATPase.
InterPro; IPR003439; ABC_transporter.
InterPro; IPR003439; ABC_transporter.
InterPro; IPR003439; ABC_transporter.
InterPro; IPR005484; Pigment_permease.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRYG (IN REF. 3).
24AFAD799DE0D396 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PROSITE; PS00211; ABC_TRANSPORTER_1; 1.
PROSITE; PS50893; ABC_TRANSPORTER_2; 1.
Pigment; ATP-binding; Transmembrane; Transport.
NP_BIND 130 137 ATP, EM SIMILARITY)
TRANSMEM 435 485 POTENTIAL.
TRANSMEM 465 485 POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           POTENTIAL. POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pfam; PF00005; ABC tran; 1. —
ProDoon; PD00006; ABC transporter; 1.
SMART; SM0382; AAA; 1.
TIGRPAMs; TIGR00955; 3a01204; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GSPRYG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .
Ж
                                                                                                                                                                                                                                                             Science 287:2220-2222 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          75672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A
A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        . 683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tryptophan.
                                                                                                                                                                                                                                                                                                                                                                                  melanogaster
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TRANSMEM
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TRANSMEM
                                                                                                                                                                                                                                                                                  [9]
```

```
17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     358 KKKITVFKEISYT--TSFCHQLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFG 415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IIFSIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDI 297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  INGDSTAVALNREEDPKATEIIEPSKODKPLIEKLAEIYVNSSFYKETKAELHOLSGGEK 357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SNINGIMKPG-LNAILGPTGGGKSSLLDVLAARKDPSGL----SGDVLINGAPRPA-NFK 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    119 CNSGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKV 178
                                                                                                                                                           64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LEKPLEQPENGYTYKATWEMĞFRAVLWRSWLSSVLKEPLLVKVRLIQTTWVAILIGLIFLG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LSDLLPMTMLPS11FTC1VYFMLGLKPKADAFFVMMFTLMMVAYSASSMALA1AAGQSVV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ::: ||:::::|| | |::|| | |::|| | |::|| |::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|| :::|
                                                                                                                                                                                                                                                                                                                                                                SVATLLMTICFVFMMIFSGLLVWLT11ASWLSWLQYFSIPRYGFTALQHNEFLGQNFCPG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LKNDSTGIONRAGVLFFLTTNOCFSSVSA-VELFVVEKKLFIHEYISGYYRVSSYFLGKL
                                                                                                                                              5 NVEVFIPYSOGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVEKEIL
                                                                                                                                                                                                                                  -----KHLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTQ-FIRGVSGGERKRTSIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSKQGRT
                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       595 -LNATGNNPCNYATCTGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKL
                                                                           903
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ceratitis capitata (Mediterranean fruit fly).
Bukaryota, Metazoa, Arthropoda; Haxapoda, Insecta, Pterygota,
Neoptera, Endopterygota, Diptera, Brachycera, Muscomorpha,
Tephritoidea, Tephritidae, Ceratitis.
Length 687;
                                                                           Indels
24.2%; Score 812; DB 1; L
Similarity 32.1%; Pred. No. 3.3e-48;
.0; Conservative 134; Mismatches 251;
                                                                                                                                                                                                                              74 NMDIFGAVNQ-----PGSGWRQLVNRTRGLFCNERHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-NOV-1997 (Rel. 35, Created)
01-NOV-1997 (Rel. 35, Last seq
16-OCT-2001 (Rel. 40, Last ann
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NCBI_TaxID=7213;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   White protein.
                                                                                   Matches 210;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CERCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        179 (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          535
                                                                                                                                                                                                                                                                                                                      65
        Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WHIT_CERCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .
8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ID DTT DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DDT TO DD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                         ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ठ
                                                                                                                                                                   ઠે
                                                                                                                                                                                                                                                                                                                      ठ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
```

```
01-FEB-1995 (Rel. 31,
01-NOV-1997 (Rel. 35,
16-OCT-2001 (Rel. 40,
                                                                                                                                                                                                                                                                                                                                                                                                                                                     White protein.
                                                                                                                                                                                                                                                                                                                                            LUCCU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TRANSMEM
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TRANSMEM
                                                                                                                                                                                                                                                                                                                                              WHIT LI
205360
                                                                                                                                                                                                                                                                                                                                                HETTTT THE PRINCE AND THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE PROOF THE 
                                                                                                                                              셤
                                                                                                                                                                                                                              g
                                                                                                       ò
                                                                                                                                                                                           à
                                                                                This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the Buropean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    145 SPSTIR---MINGHPVDAKEMQARCAYVQQDDIFIGSLTAREHLIFQAMVRMPRHMTQXQ 201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LDSSTANAVLLLKRMSKQGRTIIFSIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALG 275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              276 YFESAGYHCEAYNNPADFFLDIINGDSTAVALNREED----FKATEIIEFSKQDKPLIE 330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                331 KLAEIYVNSSFYKETKAELHQLSGGEKKKKITVFKEISYTTSFCHQLRWVSKRSFKNLLG 390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            391 NPQASIAQIIVTVVLGLVIGAIYFGLKNDSTGIQNRAGVLFFLTTNQCF-SSVSAVELFV 449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       479 TELEVEMETRSKLYRCDTYFLGKTIAE-LPLFLVVPFLFTAIAYPLIGLRPGVDHFFTA 537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11 PVSQGNTN-GF----LSFHNICYRVK 47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             30 PYEQSSINOGFCKNYGTLSPPSPALTADNLTYSWYNLDVF--GAVHQPGSSWKQLVNRVK 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     202 KVQRVDQVIQDLSLGKCQNTLIGVPGRVKGLSGGERKRLAFASBALTDPPLLICDEPTSG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       48 ---LKSGFLPCRKPVEKEILSNINGIMKPG-LNAILGPTGGGKSSLLDVLAARK-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           98 DPSGLSGDVLINGAPRPA-NFKCNSGYVVQDDVVMGTLTVRENLOFSAALRLATTMTNHE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  157 KNERINRVIQELGLDKVADSKVGTQ-FIRGVSGGERKRTSIGMELITDPSILFLDEPTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VEKKLFIHEYISGYYRVSSYFLGKLLSDLLPMTMLPSIIFTCIVYFMLGLKPKADAFFVM
cells responsible for eye color.
SUBCELLULAR LOCATION: Integral membrane protein.
SIMILARITY: Belongs to the ABC transporter family. MDR subfamily.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N-LINKED (GLCNAC. .) (POTENTIAL)
N-LINKED (GLCNAC. .) (POTENTIAL)
3F9CBC78A835C4CC CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             80;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 679;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 23.0%; Score 772; DB 1; Length 67 Best Local Similarity 30.7%; Pred. No. 1.8e-45; Matches 209; Conservative 135; Mismatches 256; Indels
                                                                                                                                                                                                                                              EMBL; X89933; CAA61998.1; -...

InterPro; IPR003593; AAA_ATPase.
InterPro; IPR003593; ABC_transporter.
InterPro; IPR005284; Pigment_permease.
Ffan; ProDom; Pob00006; ABC_tran; 1.
R ProDom; Pob00006; ABC_tran; 1.
R SMART; SM00382; AAA, 1.
R PROSITE; PS00211; ABC_TRANSPORTER 1; 1.
R PROSITE; PS50893; ABC_TRANSPORTER 2; 1.
NP_BIND 121 128 ABC_TRANSPORTER 2; 1.
NP_BIND 121 128 ATP (BY SIMILARITY).
TRANSMEM 427 445 POTENTIAL.
TRANSMEM 507 525 POTENTIAL.
TRANSMEM 507 525 POTENTIAL.
TRANSMEM 507 525 POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        477
525
525
586
670
628
643
75145 MV,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            628
643
679 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
CARBOHYD
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ठ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the BMBL outstation the Buropean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see http://www.isb-sib.ch/announce/or send an email to license@lib.ch).
510 MFTLMMVAYSASSMALAJAAGQSVVSVATLLMTICFVFMMIFSGLLVNLTTJASWLSWLQ 569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Lucilia cuprina (Greenbottle fly) (Australian sheep blowfly).
Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Prerygota;
Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha; Oestroidea;
Calliphoridae; Lucilia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE=92264941; PubMed=1971656;
Blizur A., Vacek A.T., Howells A.J.;
Elizur A., Vacek A.T., Howells A.J.;
Cloning and characterization of the white and topaz eye color genes from the sheep blowfly Lucilia cuprina.";
J. Mol. Evol. 30:347-358(1990).
J. Mol. Evol. 30:347-358(1990).
J. FUNCTION: May be part of a membrane-spanning permease system necessary for the transport of pigment precursors into pigment cells responsible for eye color.
J. SUBCELJULAR LOCATION: Integral membrane protein.
J. SIMILARITY: Belongs to the ABC transporter family. MDR subfamily.
                                              570 YPSIPRYGFTALQHNEFLGQNFCPG-LNATGNNPCNYATCTGEEYLVKQGIDLSPWGLWK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            expression
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NEDLINE-97087158; PubMed-8933176; MEDLINE-97087158; PubMed-8933176; Garcia R.L., Perkins H.D., Howells A.J.; The structure, sequence and developmental pattern of the white gene in the blowfly Lucilia cuprina."; Insect Mol. Biol. 5:251-260(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PROSITE; PS00211; ABC TRANSPORTER 1; 1.
PROSITE; PS50893; ABC TRANSPORTER 2; 1.
Pigment; ATP-binding; Transmembrane; Transport.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATP (POTENTIAL).
POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Created)
Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL; V53255; CAA37365.1; -... EMBL; X53255; CAA37365.1; -... EMBL; X53255; CAA37365.1; -... InterPro; IPR003439; ABC_transporter. InterPro; IPR003439; ABC_transporter. InterPro; IPR005284; Pigment_permease. Pfam; PP00005; ABC tran; 1... SWAXT; SM0382; AAA; 1... TIGRFAMS; TIGR00955; 3a01204; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRT;
                                                                                                                                                                                                                                                                       629 NHVALACMIVIFLTIAYLKL 648
                                                                                                                                                                                                                                                                                                              652 DFIGLALLIVGFRISAYIAL 671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STANDARD;
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the BWEL outstation the Buropean Bioinformatics institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  342 YKETKABLHQLSGGEKK----KKITVFKEISYTTSFCHQLRWVSKRSFKNLLGNPQASIA 397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  107 KDFNP-----RKHLLKNVTGVAKSGELLAVMGSSGAGKTTLLNALAFRSPFGVKISPNAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     --INGAPRPA-NFKCNSGYVVQDDVVMGTLTVRENLQFSAALRLATTWTNHEKNERINRV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IQELGIDKVADSKVGTQ-FIRGVSGGERKRTSIGMELITDPSILFLDEPTTGLDSSTANA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VLLLLKRMSKQGRTIIFSIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CEAYNNPADFFLDIINGDSTAVALNREEDPKATEIIEPSKQD--KPLIEKLAEIYVNSSF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VEVFI PVSQGNTNG-FP------ATASNDLKAFTEGAVLSFHNI CYRVKLK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SGFLPCRKPVEKEILSNINGIMKPG-LNAILGPTGGGKSSLLDVLAARKDPS-GLSGDVL
             Junsect Moi. Biol. 4:217-231(1995).

-!- FUNCTION: May be part of a membrane-spanning permease system necessary for the transport of pigment precursors into pigment cells responsible for eye color.

-!- SUBCELLUIAR LOCATION: Integral membrane protein.

-!- SIMILARITY: Belongs to the ABC transporter family. MDR subfamily.
                                                                                                                                                                                                                                                                                                                                                                                                | Rangel | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 695;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
22.4%; Score 751; DB 1; Length 69
Best Local Similarity 30.0%; Pred. No. 5.3e-44;
Matches 206; Conservative 129; Mismatches 273; Indels
                                                                                                                                                                                                                                                                                                                                      EMBL; U29486; AAC46995.1; -. EMBL; U29485; AAC46994.1; -. EMBL; U29484; AAC47423.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CPPNYNPADFYVQML----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              284
  ઢ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                    AKEMQARCAYVQQDDLFIGSLTAREHLIFQATVRMPRTWTQKQKLQRVDQVIQDLSLIKC 216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 611
                                                                                                                                                                                                                                                        EILSNINGIMKPG-LNAILGPTGGGKSSLLDVLAARK-----DPSGLSGDVLINGAPRP 114
                                                                                                                                                                                                                                                                                    :: |: |: || || |:: || || || HIINDERSARGVQISPSSVR---MINGHPVD 156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KQGRTIIFSIHQPRYSIFKLPDSLTLLASGRLMFHGPAQEALGYFESÄGYHCEAYNNPAD 292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FFLDIINGDSTAVALNREEDFKATEIIEPSKQDKPLIEKLAEIYVNSSFYKETKAELHQL 352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S----GGEKKKKITVFKEISYTTSFCHQLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLV 408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    380 AAKTDGLOKDDETTILYKASWFTOF----RAIMWRSWISTLKEPLLVKVRLIQTTMVAVL 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IGAIYFGLKNDSTGIQNRAGVLFFLTTNQCFSSVSAV-ELFVVEKKLFIHEYISGYYRVS 467
                                                                                                                                                                                                               9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRAIN=StackOv / G3;
MEDLINE-96423158; PubMed=8825759;
MEDLINE-96423158; PubMed=8825759;
Besnanky N.J., Bedell J.A., Benedict M.Q., Mukabayire O., Hilfiker D.,
Gollins F.H.;
"Cloning and characterization of the white gene from Anopheles
                                                                                                                                                                                                                                                                                                                                                                                                                                                       SCASISISMALSVGPPLIIPF---LLFGGVFLNSGSVPVYFKWLSYFSWFRANEGILLIN
                                                                                                                                                                                                                                                                                                                                             A-NFKCNSGYVVQDDVVMGTLTVRENLOFSAALRLATTMTNHEKNERINRVIQELGLDKV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SYFLGKLLSDLLPMTMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAI
                                                                                                                                                                                                               NLDVFGEVHOPGSN--------KP-RK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            :|||||||::||:::||:::||:::|
TYFLGKTLAE-LPLFLVVPFLFIAIAYPMIGLRPGITHFLSALALVTLVANVSTSFGYLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAGOSVVSVATLL ---MIICFVFMMIFSGLLVNLTTIASWLSWLOYFSIPRYGFTALOHN
                                                                                                                                                                     5 NVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVK---LKSGFLPCRKPVEK
                                                                                                                                                                                                                                                                                                                                                                                                                                ADSKVGTQ-FIRGVSGGERKRISIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Anopheles gambiae (African malaria mosquito).
Bukaryota, Metazoa, Arthropoda, Hexapoda, Insecta, Pterygota,
Neoptera, Endopterygota, Diptera, Nematocera, Culicoidea, Anopheles.
NCBI_TaxID=7165;
                                                                                                                            75;
                                                                                     677;
                                                                                     Length
                                                                                                                              Indels
                  67 POTENTIAL.
75365 MW; D16FC11C97EED51D CRC64;
                                                                                  22.5%; Score 754.5; DB 1; 31.4%; Pred. No. 2.9e-44;
                                                                                                                            Mismatches 226;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              027256; Q17006;
01-NOV-1997 (Rel. 35, Created)
01-NOV-1997 (Rel. 35, Last sequence update)
10-CCT-2001 (Rel. 40, Last annotation update)
White protein.
  POTENTIAL
                                                                                                                              Conservative 123;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EFL----GONFCPGLNAT 598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OWADVOPGEITCTSTNTT 629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STANDARD;
  563
647
677 AA;
                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                       Local Simí
hes 194;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WHIT ANOGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         436
TRANSMEM
TRANSMEM
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 555
                                                                                                                                                                                                                                                                                                                                             115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    337
                                                                                     Query Match
                                                                                                            Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                               吕
                                                                                                                                                                                                                                                          ઠે
                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               쉱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    원
```

49

161 164 221 223

\$1.5

us-09-961-086-1.rsp

```
Ā
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    999
555
555
585
616
700
858
658
7905
7905
7905
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STANDARD;
                                                                              658
709 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MOUSE
                                                   TRANSMEM
CARBOHYD
CARBOHYD
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           621
TRANSMEM
TRANSMEM
TRANSMEM
                                                                                                                  Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ABG1 MOU
Q64343;
                                                                                                                                Best Local
Matches 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ABG1_1
1D AC
DT DT DT DT DT OOS
                                                                                                                                                                                                                                                                                                                                                                             상 원
                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
  821111
                                                                                                                                                                                           g
                                                                                                                                                                                                                     \overset{\circ}{\delta}
                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                       ઠે
                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                          ठ
                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its web yn one-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
 516
                                                                                                                                                                                                             622 ANEALLINGWSTVVDGEIACTRAN------VTCPRSEIILETFNFRVEDFAL---- 667
                                         QIIVTVVLGLVIGAIYFGLKNDSTGIQNRAGVLFFLTTNQCFSSVSAV-BLFVVEKKLFI 456
                                                                                                                                                          GFTALQHNEFL----GQNFCPGLNATGNNPCNYATCTGEEYLVKQ-GIDLSPWGLWKNHV 631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ke Z., Benedict M.Q., Cornel A.J., Besansky N.J., Collins F.H.;
"The Anopheles albimanus white gene: molecular characterization of
the gene and a spontaneous white gene mutation.";
Genetica 101:87-96(1997)
-!- FUNCTION: May be part of a membrane spanning permease system
necessary for the transport of pigment precursors into pigment
cells responsible for eye color.
-!- SUBCELLULAR LOCATION: Integral membrane protein.
-!- SUMILARITY: Belongs to the ABC transporter family. MDR subfamily.
                                                                                         HEYISGYYRVSSYFLGKLISDLIPMIMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMMV
                                                                                                        REKRSRLYRVDIYFLGKIIAE-LPLFIAVPFVFTSIIYPMIGLRIGATHYLITLFIVTLV
                                                                                                                                            AYSASSMALAIAAGOSVVSVATLLMTICFVFMMIFSGLLVNLTTIASWLSWLQYFSIPRY
                                                                                                                                                                                                                                                                                                                                                                                                                               Anopheles albimanus (New world malaria mosquito).
Wataryota, Metazoa, Arthropoda, Hexapoda, Insecta, Pterygota,
Neoptera, Endopterygota, Diptera, Nematocera, Culicoidea, Anopheles.
NCBI_TaxID=7167;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL; L76302; AAA88240.1; -.
InterPro; IPR003593; AAA ATPsae.
InterPro; IPR003439; ABC_transporter.
InterPro; IPR003284; Pigment_permease.
Pfam; PF0000006; ABC_trans; 1.
SMART; SM00382; AAA; 1.
IGRFAMS; TIGR00955; 3a01204; 1.
TIGRFAMS; TIGR00955; 3a01204; 1.
PROSITE; PS00211; ABC_TRANSPORTER_1; FALSE_NEG.PROSITE; PS00313; ABC_TRANSPORTER_2; 1.
Pigment; ATP-binding; Transmembrane; Transport.
Pigment; ATP-binding; Transmembrane; Transport.
NP_BIND 136 143
NP_BIND 292 299 ATP (POTENTIAL).
TRANSMEM 457 475 POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                01-NOV-1997 (Rel. 35, Created)
01-NOV-1997 (Rel. 35, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
                                                                                                                                                                                                                                                                                                                                         709 AA
                                                                                                                                                                                                                                                632 ALACM - IVIFLTIAYLKLLFLKKYS 655
                                                                                                                                                                                                                                                               668 DIACLFALIVLFRIGALLCLWLRSRS
                                                                                                                                                                                                                                                                                                                                         PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    [1]

SEQUENCE FROM N.A.

STRAINE-TECO;

MEDLINE-98126549; PubMed-9465401;
                                                                                                                                                                                                                                                                                                                                           STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                      White protein.
                                                                                                                                                                                                                                                                                                                                         WHIT ANOAL Q16928;
                                          398
                                                                                         457
                                                                                                                                                                     562
                                                                                                                                                                                                                                                                                                               RESULT 8
WHIT ANOAL
                                                                                                                                                                                                                                                                                                                                                      ઠે
                                                              유
                                                                                    \dot{\circ}
                                                                                                             g
                                                                                                                                          ò
                                                                                                                                                                ద
                                                                                                                                                                                           à
                                                                                                                                                                                                                    d
                                                                                                                                                                                                                                                ઠે
                                                                                                                                                                                                                                                                    d
```

```
24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          282 MAQSVLQVLKGMAMKGKTIILTIHQPSSELYCLFDRIILVAEG-VAFLGSPYQSADFFSQ 340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   504
                                                                                                                                                                                                                                                                                                                                                      51 IQVWRPKSYGSVKGQIPAQDRLTYTWREIDVFGQAAIDGKSREPLCSRLRHCFTRQRLVK 110
                                                                                                                                                                                                                                                                                                                                                                                                                    107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          340 SFYK---ETKAELHQLSGGE-KKKKITV------FKEISYTTSFCHQLRWVSKRSF 385
                                                                                                                                                                                                                                                                                                                     20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             - ELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLLPMTMLPSIIFTCIVYFMLGLKPKAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                505 AFFVMMFTLMMVAYSASSMALAIAAGQSVVSVATLLMTICFVFMMIFSGLLVNLTTIASW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             565 LSWLOYFSIPRYGFTALQHNEFL----GONFCPGLNATGNNPCNYATCTGEEYLVKQGID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            623 FKYLSYLSWFRYANEALLINQWADHRDGEIGCTRANVT-----CPASGEIILETFNFR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   341 LGIPCPPNYNPADFYVQML-----AIAPNKETECRET------IKKICDSFAVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         : | | : | | : | | : | | : | | 384 PIARDIIETASQVNGDGGIELTRTKHTTDPYFLQPMEGVDSTGYRASWWTQFYCILWRSW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6 VEVFIPVSQGNTNG-FPAT----ASNDLKAFTEGAV--LSFHNICYRV-----KLKS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               108 -INGAPRPA-NFKCNSGYVVQDDVVMGTLTVRENLQFSAALRL----ATTMTNHEKNER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      161 INRVIQELGLDXVADSKVGTQ-FIRGVSGGERKRISIGMELITDPSILFLDEPTTGLDSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           220 TANAVLLLIKRMSKOGRTIIFSIHOPRYSIFKLFDSLTLLASGRLMFHGPAQBALGYFES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        280 AGYHCBAYNNPADFFLDIINGDSTAVALNREBDFKATEIIEPSKQDKPLIEKLAEIYVNS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    386 KOLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDSTGIQNRAGVLFFLTTNQCFSSVSAV
                                                                                                                                                                                                                                                                                                                                                                                                                    51 GFLPCRKPVEKEILSNINGIMKPG-LNAILGPTGGGKSSLLDVLAARKDPS-GLSGDVL-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-NOV-1997 (Rel. 35, Created)
01-NOV-1997 (Rel. 35, Last sequence update)
115-MAR-2004 (Rel. 43, Last annotation update)
ATP-binding cassette, sub-family G, member 1 (White protein homolog)
(ATP-binding cassette transporter 8).
ABCG1 OR ARG8 OR WHI1.
Mus musculus (Mouse).
POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
N-LINKED (GLCNAC. ..) (POTENTIAL).
N-LINKED (GLCNAC. ..) (POTENTIAL).
N-LINKED (GLCNAC. ..) (POTENTIAL).
                                                                                                                                                                                                                                                                    87;
                                                                                                                                                                                                                        DB 1; Length 709;
                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LSPWGLWKNHVALACM--IVIFLTIAYLKLLFLKKYS 655
                                                                                                                                                                                                                      ch 22.0%; Score 736.5; DB 1; I Similarity 30.1%; Pred. No. 5.4e-43; 210; Conservative 135; Mismatches 265;
```

```
MEDLINE=21474438; PubMed=11590207; Schmitz G., Langmann T., Heimerl S.; Schmitz G., Langmann T., Heimerl S.; Schmitz G., Langmann T., Heimerl S.; Langmann T., Heimerl S.; Lapid other ABCG family members in lipid metabolism."; J. Lipid Res. 42:1513-1520(2001).
-!- FUNCTION: Transporter involved in macrophage lipid export complex. Could an active component of the macrophage lipid export complex. Could also be involved in intracellular lipid transport processes. The role in cellular lipid homeostasis may not be limited to
                                                                                                                                                                                                                                                                                                                                                                           E31
SEQUENCE FROM N.A.
MEDLINE=21092576; PubMed=11162488;
Lorkowski S., Rust S., Engel T., Jung E., Tegelkamp K., Galinski E.A., Assmann G., Cullen P.;
"Genomic sequence and structure of the human ABCG1 (ABC8) gene.";
"Genomic sequence and structure of the human ABCG1 (ABC8) gene.";
Biochem. Biophys. Res. Commun. 280:121-131(2001).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SUBCELLUIAR LOCATION: Integral membrane protein (Probable).
TISSUE SPECIFICTY: Expressed mainly in brain, thymus, lung, adrenals, spleen and placenta. Little or no expression in liver, kidney, heart, muscle or testes.
INDUCTION: Strongly induced in macrophage cell line RAW264.7 during cholesterol influx. Induction is mediated by the liver X receptor/retinoide X receptor (LXK/RXR) pathway.
SIMILARITY: Belongs to the ABC transporter family. ABCG (White)
Bukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi,
Mammalia, Butheria, Rodentia, Sciurognathi, Muridae, Murinae, Mus
                                                                                                                                                                                                                                                                          MEDLINE=96359154; PubMed=8703120; Savary S., Denizot F., Luciani M.-F., Mattei M.-G., Chimini G.; Savary S., Denizot F., Luciani M.-F., Mattei M.-G., Chimini G.; "Molecular cloning of a mammalian ABC transporter homologous to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE=20261604; PubMed=10799558; Venkateswaran A., Repa J.J., Lobaccaro J.-M.A., Bronson A., Mangelsdorf D.J., Edwards P.A., Mangelsdorf D.J., Edwards P.A., "Human white/murina ABCB mRNA levels are highly induced in lipid-loaded macrophages. A transcriptional role for specific
                                                                                               MEDINE=97186700; PubMed=9034316;
Croop J.M., Tiller G.E., Fletcher J.A., Lux M.L., Raab E.,
Goldenson D., Son D., Archniegas S., Wu R.;
"Isolation and characterization of a mammalian homolog of the
Drosophila white gene.";
Gene 185:77-85(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL; AF323659; AAK27442.1; -. MGD; MGI:107704; Abcgl.
InterPro; IPR003593; AAA ATPase.
InterPro; IPR003439; ABC_transporter.
InterPro; IPR005284; Pigment_permease.
pfam; PF00005; ABC_tran;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pfam; PF00005; ABC_tran; 1.
ProDom; PD000006; ABC_transporter; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Biol. Chem. 275:14700-14707(2000)
                                                                                                                                                                                                                                                                                                                                         Drosophila white gene.";
Mamm. Genome 7:673-676(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL; U34920; AAB47738.1; -.
EMBL; Z48745; CAA88636.1; -.
                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                      CBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     macrophages.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    subfamily.
                                                                                                                                                                                                                                                           STRAIN=DBA/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REVIEW
```

```
|:||||:::::||
PTYHNPADFVMEVASGEYGDQNSRLVRAVREGMCDADYKRDLGGDTDVNPFLWHRPAEED 375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  201 LTALGLIPCANTRIGS----LSGGORKRLAIALELVNNPPVMFFDEPTSGLDSASCFQV 255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          392 PQASIAQIIVTVVLGLVIGAIYFGLKNDSTGIQNRAGVLFFLTTNQCFSSVSAVEL-FVV 450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            92 WKKKGY------KTLLKGISGKENSGELVAIMGPSGAGKSTLMNILAGYRE-TGMKGA 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EAYNNPADFFLDIINGD----STAVALNRE-----EDFKATEIIEPSKQDKPLIEK 331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LAEIYVNSSFYKETKAELHQLSGGEKKKKITVFKEISYTTSFCHQLRWVSKRSFKNLLGN 391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       106 VLINGAPRPAN-FKCNSGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRV 164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     165 IQELGLDXVADSKVGTQFIRGVSGGERKRTSIGMELITDPSILFLDEPTTGLDSSTANAV 224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SULTHERITSHIGIGELIGELYHGIGEAKKVESNSGFEFFSMLFEMFAALMPTVETFPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BMSVFLREHLNYWYSLKAYYLAKTWAD-VPPQIMFPVAYCSIVYWMTS-QPSDAVRFVLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EXKL FIHEYISGYYRVSSYFLGKLLSDLLPMTMLPSIIFTCIVYFMLGLKPKADAFFVMM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FIL-MAVAYSASSMALAIAAGQSVVSVATLLMTICFVFMMIFSGLLVNLTTIASWLSWLQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LILLKRMSKQGRTIIFSIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             570 YFSIPRYGFTALQHNEFLGQNFCPGLNATGNNPCNYA-TC--TGEEYLVKQGIDLSPWGL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3 SSNVEVFIPVSQGNTNGFPATASNDLKAFTE------GAV-LSFHNICYRVK----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           38 SSNVD----EVETDLLNGHLKKVDNN---FTEAORFSSLPRRAAVNIEFKDLSYSVPEGPW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         48 -LKSGFLPCRKPVEKEILSNINGIMKPG-LNAILGPTGGGKSSLLDVLAARKDPSGLSGD
                                                                                                                                                                                                                                                                                                                                                                                                                           21.3%; Score 714.5; DB 1; Length 666;
                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Similarity 28.9%; Preq. No. 1.05-11;
Matches 198; Conservative 145; Mismatches 244; Indels
                 TIGRPAMS; TIGR00955; 3a01204; 1.
PROSITE; PS00211; ABC_TRANSPORTER 1; 1.
PROSITE; PS0093; ABC_TRANSPORTER 2; 1.
Transport; Lipid transport; ATP-binding; Transmembrane.
DOMAIN
                                                                                                                                                                                                                                                                                                                                         CYTOPLASMIC (POTENTIAL).
ATP (POTENTIAL).
EDDC6AFBD43950B6 CRC64;
                                                                                                                                      EXTRACELLULAR (POTENTIAL)
                                                                                                                                                                                                                 EXTRACELLULAR (POTENTIAL) POTENTIAL.
                                                                                                                                                                                                                                                                                                    EXTRACELLULAR (POTENTIAL)
                                                                                                                                                                                                                                                             CYTOPLASMIC (POTENTIAL).
                                                                                                                                                                           CYTOPLASMIC (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                              Pred. No. 1.6e-41
                                                                                                                                                                                                                                                                                                                                                                125 A
74033 MW;
SMART; SM00382; AAA; 1.
                                                                                                                                                                                                                                                                                                                                                                  118 :
666 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      586
                                                                                                                                                                                                                                                                                                                                             DOMAIN
NP BIND
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        468
                                                                                                                                        DOMAIN
TRANSMEM
                                                                                                                    TRANSMEM
                                                                                                                                                                                                    TRANSMEM
                                                                                                                                                                                                                                           TRANSMEM
                                                                                                                                                                                                                                                                                  FRANSMEM
                                                                                                                                                                                                                                                                                                                            TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                               DOMAIN
                                                                                                                                                                                                                                                               DOMAIN
                                                                                                                                                                                                                                                                                                        DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   \delta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ਨੇ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the between the Swiss Institute. I Bioinformatics are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
```

WKNHVALACMIVIFLTIAYLKLLF 650 YLDFIVLGIFFISLRLIAYFVLRY

ð 심

467

284

24;

Gaps

```
ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ठ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a
a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          쉱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bicinformatics and the EWBL outstation the Buropean Bicinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDILINE=2238827; PubMed=12477932;

MEDILINE=2238827; PubMed=12477932;

Strausberg R.L., Feingold E.A., Grouse L.H., Derge J.G.,

A Klausmer R.D., Collins F.S., Wagner L., Schemen C.M., Schuler G.D.,

Altschul S.F., Zeeberg B., Buetow K.H., Schemen G.M., Hong L.,

B Altschul S.F., Jordan H., Moore T., Max S.I., Wang J., Hsieh F.,

B Diatchenoko L., Marusina K., Farmer A.A., Rubin G.M., Hong L.,

Stapleton M.J., Usdin T.B., Toshiyuki S., Carninci P., Prenge C.,

Stapleton M.J., Usdin T.B., Toshiyuki S., Carninci P., Prenge C.,

B Raha S.S., Loquellano N.A., Peters G.J., Abramson R.D., Mullahy S.J.,

B Raha S.S., Morley W.C., Hale S., Garcia A.M., Gay L.J., Hulyk S.W.,

Richards S., Worley V.C., Hale S., Garcia A.M., Gay L.J., Hulyk S.W.,

Pahey J., Helton E., Ketteman M., Madan A., Rodrigues S., Sanchez A.,

Whitling M., Madan A., Young A.C., Shevchenko Y., Bouffard G.G.,

Blakesley R.W., Touchman J.W., Green E.D., Dickson M.C.,

B Rodriguez A.C., Grimwood J., Schmutz J., Myers R.M.,

B Schnerth A., Schein J.E., Jones S.J.M., Marra M.A.;

"Generation and initial analysis of more than 15,000 full-length

Human and mouse cDNA sequences.";

Ly Proc. Natl. Acad. Sci. U.S.A. 99:16899-16903(2002).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE OF 20-646 FROM N.A.
TISSUE=22170423; PubMed==12183068;
Oldfield S., Lowry C., Ruddick J., Lightman S.;
"ABCG4: a novel human white family ABC-transporter expressed in the brain and eye.";
                                                                                                                                                                                                                                                                                                                                                                                                                                          S., Lueken A., Rust S., Schlueter B., Berger G.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Biochim. Biophys. Acta 1591:175-179(2002).

- FUNCTION: May be involved in macrophage lipid homeostasis.
-!- SUNGELLULAR LOCATION: Integral membrane protein (Brobable).
-!- SIMILARITY: Belongs to the ABC transporter family. ABCG (White)
                                                                                                                                                                                                                                                                                                                                                                                       SECUENCE FROM N.A.
MEDLINE=21518231; PubMed=11606068;
MEDLINE=21518231; PubMed=11606068;
Bengel T., Lorkowski S., Lueken A., Rust S., Schlueter B., Berger G Cullen P., Ascmann G.;
"The human P. Ascmann G.;
"The human ABCG4 gene is regulated by oxysterols and retinoids in monocyte-derived macrophages.";
Biochem. Biophys. Res. Commun. 288:483-488 (2001).
                                                                                                                                                                                                                                                           Homo sapiens (Human).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                            28-FEB-2003 (Rel. 41, Created)
28-FEB-2003 (Rel. 41, Last sequence update)
110-0CT-2003 (Rel. 42, Last annotation update)
ATP-binding cassette, sub-family G, member 4.
                                                                              646 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL; AJ308237; CAC87131.1; --
EMBL; BC041091; AAH41091.1; --
EMBL; AJ300465; CAC17140.1; --
PIR; JC7777; JC7777,
Genew; HGNC:13884; ABCG4.
                                                                              STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                               NCBI_TaxID=9606;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  subfamily
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       rissum=Brain;
                                                                            ABG4 HUMAN
Q9H172;
                         RESULT 10
ABG4_HUMAN
                                                                            HERE THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF
```

```
16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         274 LGYFESAGYHCEAYNNPADFFLDIINGD-----STAVALNREEDFKATEII 319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             320 EPSKODKPLIEKLABIYVNSSFYKETKABLHQLSGGEKKKKITVFKEISYTTSFCHQLRW 379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          349 APCPPCPPEVDPI-------ESH-----ESH-----TFATSTLTQFCI 376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 95 ARKDPSGLSGDVLINGAPRP-ANFKCNSGYVVQDDVVMGTLIVRENLQFSAALRLATIMT 153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               229 SGLDSASCFQVVSLMKSLAQGGRTIICTHQPSAKLFEMFDKLYILSQGQCIFKGVVTNL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 437 AALMPIVLIFPLEMAVFWREHLNYWYSLKAYYLAKIWAD-VPFQVVCPVVYCSIVYWMTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     499 LKPKADAFFVMMFTLMMVAYSASSMALAIAAGQSVVSVATLLMTICFVFMMIFSGLLVNL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 37 LSFHNICYRVKLKSGFLPC-RKPVEKEILSNING-IMKPGLNAILGPTGGGKSSLLDVLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       154 NHEKNERINRVIQELGLDKVADSKVGTQFIRGVSGGERKRTSIGMELITDPSILFLDEPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              214 TGLDSSTANAVLLLLKRMSKQGRTIIFSIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                377 LFKRTFLSILRDIVLTHLRFMSHVVIGVLIGLLYLHIGDDASKVFNNTGCLFFSMLFLMF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         440 SSVSAVEL-FVVEKKLFIHEYISGYYRVSSYFLGKLLSDLLPMTMLPSIIFTCIVYFMLG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           559 TTIASWLOYFSIPRYGFTALQHNEFLGQNFCPGLNATGNNPCNYATCT-GEEYLVKQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               556 KTIPTYLOWSSYLSYVRYGFEGVILTIY------GME-RGDLTCLEERCPFREPOSILR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     380 VSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDSTGIQNRAGVLFFLTTNQCF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                72; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .) (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 646;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match

21.1%; Score 708; DB 1; Length 64

Best Local Similarity 27.7%; Pred. No. 4.4e-41;

Matches 176; Conservative 141; Mismatches 247; Indels
                                                                                                                                                                                                                                                                                                                                      4 (POTENTIAL).
CYTOPLASMIC (POTENTIAL).
5 (POTENTIAL).
EXTRACELLULAR (POTENTIAL).
                                                                                                                                                                                                    1 (POTENTIAL).
EXTRACELLULAR (POTENTIAL).
2 (POTENTIAL).
CYTOPLASMIC (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATP (POTENTIAL).
N-LINKED (GLCNAC. .) (PC 9CCEC6E150772611 CRC64;
                                                                                                                                                                                                                                                                                          3 (POTENTIAL).
EXTRACELLULAR (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                    CYTOPLASMIC (POTENTIAL).
InterPro; IPR003593; AAA ATPase.
InterPro; IPR003499; ABC_transporter.
Promon; PP000005; ABC_tran; 1.
SMART; SM00382; AAA; 1.
PROSITE; PS00211; ABC_TRANSPORTER 1; 1.
PROSITE; PS50893; ABC_TRANSPORTER 2; 1.
PROSITE; PS50893; ABC_TRANSPORTER 2; 1.
PROSITE; PS50893; ABC_TRANSPORTER 2; 1.
PROSITE; PS50893; ABC_TRANSPORTER 1; 1.
PROSITE; PS50893; ABC_TRANSPORTER 2; 1.
PROSITE; PS50893; ABC_TRANSPORTER 2; 1.
PROPINITION 1 393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   518 GIDLSPWGLWKNHVALACMIVIFLTIAYLKLLFLKK 653
                                                                                                                                                                                                                                                                                                                                                                                                                              (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               422 N-71895 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               422 4
646 AA;
                                                                                                                                                                                                    TRANSMEM
DOMAIN
TRANSMEM
                                                                                                                                                                                                                                                                                             TRANSMEM
DOMAIN
                                                                                                                                                                                                                                                                                                                                      TRANSMEM
DOMAIN
TRANSMEM
DOMAIN
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NP BIND
CARBOHYD
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    289
                                                                                                                                                                                                                                                                          DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                      DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
```

us-09-961-086-1.rsp

```
MEDLINE=20289799; PubMed=10830953;
Hattori M., Fujiyama A., Taylor T.D., Watanabe H., Yada T.,
A Park H.-S., Toydda A., Taylor T.D., Watanabe H., Yada T.,
A Park H.-S., Toydda A., Taylor T.D., Watanabe H., Yada T.,
A Soeda E., Obki M., Takagi T., Sakaki Y., Taudien S., Blechechmidt K.,
A Roley A., Menzel U., Delabar J., Kumpf K., Lehmann R., Patterson D.,
A Rosenthal A., Xudoh J., Shibuya K., Kuwasaki K., Asakawa S.,
A Shintani A., Sasaki T., Nagamine K., Mitsuyama S., Antonarakis S.E.,
A Minoshima S., Shimizu N., Nordsiek G., Hornischer K., Brandt P.,
A Ramser J., Beck A., Klages S., Hennig S., Riesselmann L., Dagand B.,
A Wehrmeyer S., Borzym K., Gardiner K., Nizetic D., Francis F.,
Lehrach H., Reinhardt R., Yaspo M.-L.,
Lehrach H., Reinhardt R., Yaspo M.-L.,
Lehrach H., Reinhardt R., Yaspo M.-L.,
Lehrach H., Salman chromosome 21.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE-21092576; PubMed=11162488;
Lorkowski S., Rust S., Engel T., Jung B., Tegelkamp K., Galinski E.A.,
Assmann G., Cullen P.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A. (ISOFORM 1).
MEDILINE-2119-2304; PubMed=11279031;
Porsch-Oczoueruemez M., Langmann T., Heimerl S., Borsukova H.,
Kaminski W.E., Drobnik W., Honer C., Schumacher C., Schmitz G.;
"The zinc finger protein 202 (ZNRF020) is a transcriptional repressor
"The binding cassette transporter Al (ABCAL) and ABCG1 gene
expression and a modulator of cellular lipid efflux.";
                                                                                01-NOV-1995 (Rel. 32, Created)
28-FEB-2003 (Rel. 41, Last sequence update)
15-MAR-2004 (Rel. 43, Last annotation update)
15-MAR-2004 (Rel. 43, Last annotation update)
4ATP-binding cassette, sub-family G, member 1 (White protein homolog)
(ATP-binding cassette transporter 8).
ABCG1 OR ABC8 OR WHT1.
HOMO sapiens (Human).
Buxaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE-20408883; PubMed-10950923;
MEDLINE-20408883; PubMed-10950923;
Berry A., Soct H.S., Kudoh J., Tallor I., Korostishevsky M.,
Mattenhofer M., Guipponi M., Barras C., Rossier C., Shibuya K.,
Mang J., Kawasaki K., Asakawa S., Minoshima S., Shimizu N.,
Antonarakis S.E., Bonne-Tamir B.;
Refined localization of autosomal recessive nonsyndromic deafness
DFNB10 locus using 34 novel microsatellite markers, genomic
structure, and exclusion of six known genes in the region.";
                                                                                                                                                                                                                                                              TISSUB=Retina;
MEDLINE;
MEDLINE;
Chen H.M., Rossier C., Lalioti M.D., Lynn A., Chakravarti A.,
Perrin G., Antonarakis S.E.;
Fornin G., Antonarakis S.E.;
Frin G., Antonarakis S.E.;
Muman homologue of the Drosophila white
gene and mapping to chromosome 21q22.3.";
Am. J. Hum. Genet. 59:66-75(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'Genomic sequence and structure of the human ABCG1 (ABC8) gene.";
                                       ABGI HUMAN STANDARD; PRT; 678 AA.
P45844; Q9BXK6; Q9BXK7; Q9BXK8; Q9BXK9; Q9BXL0; Q9BXL1; Q9BXL2;
Q9BXL3; Q9BXL4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A. (ISOFORMS 2; 3; 4; 5; 6 AND 7).
                                                                                                                                                                                                                                                   SEQUENCE OF 3-678 FROM N.A. (ISOFORMS 1 AND 4)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Biol. Chem. 276:12427-12433(2001).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE OF 33-678 FROM N.A.
FISSUE-Fetal brain;
MEDLINE-$7186700; PubMed=9034316;
                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A. (ISOFORM 1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Genomics 68:22-29(2000).
                                                                                                                                                                                                                      NCBI_TaxID=9606;
                             HUMAN
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Name=7; Synonyms=C, Isquence=NSP 000050, VSP 000051; Isold=P45844-7; Sequence=VSP 000050, VSP 000051; ISOSUE SPECIFICITY: EXPRESSED IN SEVERAL TISSUES.

INDUCTION: Strongly induced in monocyte-derived macrophages during cholesterol influx. Conversely, mENA and protein expression are suppressed by lipid efflux. Induction is mediated by the liver X receptor/retinoide X receptor (LXX/KXR) pathway.

SIMILARITY: Belongs to the ABC transporter family. ABCG (White)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Schmitz G., Langmann T., Heimerl S., "Role of ABCG1 and other ABCG family members in lipid metabolism.";
J. Lipid Res. 42:1513-1520(2001).
-!- FUNCTION: Transporter involved in macrophage lipid homeostasis. Is an active component of the macrophage lipid export complex. Could also be involved in intracellular lipid transport processes. The role in cellular lipid homeostasis may not be limited to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 macrophages.
--- SUBINIT: May form heterodimers with several heterologous partners of the ABCG subfamily.
--- SUBCELLULAR LOCATION: Integral membrane protein. Predominantly localized in the intracellular compartments mainly associated with the endoplasmic reticulum (ER) and Golgi membranes.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   æ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             INDUCTION, AND PROBABLE FUNCTION.

MEDLINE=20105556; PubMed=10639163;

Klucken J., Buechler C., Orso E., Kaminski W.E.,

Porsch-Oezcueruemez M., Liebisch G., Kapinsky M., Diederich W.,

Drobnik W., Dean M., Allikmets R., Schmitz G.,

ABGCG1 (ABCB), the human homolog of the Drosophila white gene, is regulator of macrophage cholesterol and phospholipid transport.";

Proc. Natl. Acad. Sci. U.S.A. 97:817-822(2000).
                                                                                                                                                                                                                                       MEDLINE=20261604; PubMed=10799558; Venkteswatera A., Repa J.J., Lobaccaro J.-M.A., Bronson A., Venkteswatera A., Ega J.J., Lobaccaro J.-M.A., Bronson A., Mangelsdorf D.J., Edwards P.A.; "Human white/murine ABC8 mRNA levels are highly induced in lipid-loaded macrophages. A transcriptional role for specific
Croop J.M., Tiller G.E., Fletcher J.A., Lux M.L., Raab E., Goldenson D., Arciniegas S., Son D., Wu R.; Isolation and characterization of a mammalian homolog of Drosophila white gene."; Gene 185:77-85(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Name=2; Synonyme=J;
IsoId=P45844-2; Sequence=VSP_000047, VSP_000051;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Name=6; Synonyms=HI;
Isold=P45844-6; Sequence=VSP_000046, VSP_000051;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Name=3; Synonyms=ABDE;
Isold=P45844-3; Sequence=VSP_000048, VSP_000051;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Bvent=Alternative splicing, Named isoforms=7;
Comment=Additional isoforms seem to exist;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IsoId=P45844-1; Sequence=Displayed;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Biol. Chem. 275:14700-14707(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL; X91249; CAA62631.1; ALT INIT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE=21474438; PubMed=11590207;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -! - ALTERNATIVE PRODUCTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          subfamily.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        oxysterols.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Name=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        [9]
REVIEW.
```

```
649
                                                                                                                                                                                                                                                                                                                                              455
                                                                                                                                                                                                                                                                                                                                                                                                                             456 IHEYISGYYRVSSYFLGKLLSDLLPWTMLPSIIFTCIVYFMLGLKPKADAFFVMMFTL-M 514
                                                                                                                      FFLDIINGDSTAVALNREEDFKATEIIEPSKQDKPLIEKLAEIYVNSSFYKET--KAEL- 349
                                                                                                                                                                                                          | ::::| :: | :: | :: | :: | :: | | :: | | :: | | :: | | :: | | :: | | :: | | :: | | :: | | :: | | :: | | :: | | :: | | :: | | :: | | :: | | :: | | :: | | :: | | :: | | :: | | :: | | :: | | :: | | :: | | :: | | :: | | :: | | :: | | :: | | :: | | :: | | :: | | :: | | :: | | :: | | :: | | :: | | :: | | :: | | :: | | :: | | :: | | :: | :: | | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | 
                                                                                                                                                                                                                                                            350 ----HQLSGGEKK-KKITVFKEISYTTSFCH------QLRWVSKRSFKNLLGNPQASI 396
                                                                                                                                                                                                                                                                                     365 PFLWHRPSEEVKQTKRLKGLRKDSSSMEGCHSFSASCLTQFCILFKRTFLSIMRDSVLTH 424
                                                                                                                                                                                                                                                                                                                                                                                     484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .
Н
                                                                                                                                                                                                                                                                                                                                                                      RYGFT-----ALOHNEFLGONFCPGLNATGNNPCNYATCTGEEYLVKQGIDLSPWGLW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      603 RYGFEGVILSIYGLDRED------LHCDIDBTCHFQX---SEAILRE-LDVENAKLY
                                       209 CANTRIGS-----LSGGQRKRLAIALELVNNPPVMFFDEPTSGLDSASCFQVVSLMKGLA
                                                                                                                                                                                                                                                                                                                                              397 AQIIVTVVLGLVIGAIYFGLKNDSTGIQNRAGVLFFLTTNQCFSSVSAVEL-FVVEKKLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              515 MVAYSASSMALAIAAGQSVVSVATLLMTICFVFMMIFSGLLVNLTTIASWLSWLQYFSIP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE=20553648; PubMed=11099417;
BETGE T. Tian H., Graf G.A., Yu. L., Grishin N.V., Schultz J.,
Berge K.E., Tian H., Graf G.A., Yu. L.,
Grishin N.V., Schultz J.,

"Accumulation of dietary cholesterol in sitosterolemia caused by
mutations in adjacent ABC transporters.";

"Accumulation of the transporter of the dietary cholesterol in sitosterolemia caused by
in the selective transport of the dietary cholesterol in and out
of the entercoytes and in the selective sterol excretion by the
liver into bile.
                 VADSKVGTQFIRGVSGGERKRTSIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMS
                                                                                              KQGRIIIFSIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Kojima
n G.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mus musculus (Mouse).
Eukaryota, Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
STRAIN=CS7BL/6; TISSUE=Liver;
STRAIN=20578753; PubMed=11138003;
MEDLINE=20578753; PubMed=11138003;
Lee M.-H., Lu K., Hazard S., Yu H., Shulenin S., Hidaka H., Kojim Allikmets R., Sakuma N., Pegoraro R., Srivastava A.K., Salen G., Dean M., Patel S.B.;
"Identification of a gene, ABCG5, important in the regulation of dietary cholesterol absorption.";
Nat. Genet. 27:79-83(2001).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               28-FEB-2003 (Rel. 41, Created)
28-FEB-2003 (Rel. 41, Last sequence update)
28-FEB-2003 (Rel. 41, Last annotation update)
ATP-binding cassette, sub-family G, member 5 (Sterolin-1).
ABGG5.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            652 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               628 KNHVALACMIVIFLTIAYLKLLF 650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    650 LDFIVLGIFFISLRLİAYFVLRY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MOUSE
                                                                                                                                                                                  293
                                                                                                                                                                                                                         324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  575
                                                                                                  233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ABGS MOT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 12
ABG5 MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                       ò
                                                                                                                             셤
                                                                                                                                                                       ₹
                                                                                                                                                                                                                臼
                                                                                                                                                                                                                                                                 ઠે
                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           55 CRKPVEKEILSNINGIMKPG-LNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPR 113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       114 PAN-FKCNSGYVVQDDVVWGTLTVRENLQFSAALRLATTWTNHEKNERINRVIQELGLDK 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   38 SSNMEA---TETDLLNGHLKKVDNNLTEAQRFSSLPRRAAVNIEFRDLSYSVPEGPWW-- 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3 SSNVEVFIPVSQGNTNGFPATASNDL---KAFT----EGAV-LSFHNICYRVKLKSGFLP 54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 1; Length 678;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       21.1%; Score 706.5; DB 1
larity 28.4%; Pred. No. 5.9e-41;
Conservative 155; Mismatches 251
ALT_INIT.
ALT_INIT.
ALT_INIT.
JOINED.
JOINED.
JOINED.
JOINED.
JOINED.
JOINED.
JOINED.
JOINED.
JOINED.
JOINED.
JOINED.
JOINED.
JOINED.
JOINED.
JOINED.
JOINED.
JOINED.
JOINED.
JOINED.
JOINED.
JOINED.
JOINED.
JOINED.
JOINED.
JOINED.
JOINED.
JOINED.
JOINED.
JOINED.
JOINED.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ALT INIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COINED.
COINED.
COINED.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOINED.
JOINED.
JOINED.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOINED.
                                                                                                                                                                                                                                                                                                                                                                                          JOINED.
JOINED.
                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOINED.
JOINED.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOINED.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAK28835.1; JOINED.
AAK28835.1; JOINED.
AAK28835.1; JOINED.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COINED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOINED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOINED
                                                                                                                                                                                                                                                                                                                                                                      JOINED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAK28833.1;
AAK28833.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAK28833.1;
AAK28833.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAK28833.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAK28833.1;
AAK28838.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAK28841.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAK28835.1;
AAK28835.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAK28836.1
AAK28836.1
AAK28836.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAK28836.1
AAK28836.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAK28833.1
AAK28833.1
AAK28833.1
                                                                                                                                                                                                                                                                                                                                 CAC00730.1
AAK28836.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAK28833.
AAK28833.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAK28842.
AAK28833.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAK28833.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAK28836.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAK28833.
                                                                                                                                                                                                                                                                                                                                                                                                                                 AAK28836
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Local Similarity
Matches 194; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AF323658;
AF323642;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AF323648;
AF323649;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AF323656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AF323660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL;
EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL;
EMBL;
EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL;
EMBL;
EMBL;
EMBL;
EMBL;
EMBL;
                                                                                                  EMBL;
EMBL;
EMBL;
EMBL;
EMBL;
                                                                                                                                                                                                        EMBL;
EMBL;
EMBL;
EMBL;
                                                                                                                                                                                                                                                                                       EMBL;
EMBL;
EMBL;
                                                                                                                                                                                                                                                                                                                                                  EMBL;
EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                              EMBL;
EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL;
EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL;
EMBL;
EMBL;
EMBL;
EMBL;
EMBL;
EMBL;
EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL;
EMBL;
EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL;
EMBL;
EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL
```

g

8 8 8 8 8

476 470

Barton Land

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the Buropean Bioinformatics Institute. There are no restrictions on its work by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
        | |: : :
-----LENIERARYLKT 351
                                                                                                                                                                                                                                                                                                                                                                                                                                        Waterston R.;
Submitted (SPZ-2001) to the EMBL/GenBank/DDBJ databases.
-1- SUBCELLULAR LOCATION: Integral membrane protein (Potential).
-1- SIMILARITY: Belongs to the ABC transporter family. MDR subfamily.
                                                                               364 FKEISYTT----SFCHOLRWVSKRSFKNILGNPQASIAQIIVTVVLGLVIGAIYFGLKND
                                                                                                                    352 LPTVPFKTKDPPGMPGKLGVLLRRVTRNLMRNKQAVIMRLVQNLIMGLFLIFYLLRVQNN
                                                                                                                                                                                         ST--GIQNRAGVLFFLTINQCFSS-VSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLS
                                                                                                                                                                                                                        477 DLLPMTMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLM---MVAYSASSMALAIAAGQSV
                                                                                                                                                                                                                                                                                                                            534 VSVATLLMTICFVFMMIFSGLLVNLTIIASWLSWLQYFSIPRYGFTALQHNEFLGQNF-C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota; Metazoa; Nematoda; Chromadorea; Rhabditida; Rhabditoidea;
Rhabditidae; Peloderinae; Caenorhabditis.
NCBI_TaxID=6239;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TIGREAMS; TIGRO1955; 3a01204; 1.
PROSITE; PS00211; ABC_TRANSPORTER_1; FALSE_NEG.
RYSOSITE; PS50893; ABC_TRANSPORTER_2; 1.
Hypothetical protein; ATP-binding; Transmembrane; Transport.
NP BIND 27 34 ATP (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Du 2.;
Submitted (AUG-1994) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-NOV-1997 (Rel. 35, Created)
28-FEB-2003 (Rel. 41, Last sequence update)
28-FEB-2003 (Rel. 41, Last annotation update)
Putative ABC transporter C05D10.3 in chromosome III.
     SREREIETYKRVQMLECAFKESDIYHKI-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             POTENTIAL.
POTENTIAL.
POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Interpro; IPR003593; AAA ATPasse.
Interpro; IPR003493; ABC transporter.
Interpro; IPR005284; Pigment permease.
Pfam; PF00005; ABC tran; Decrease.
ProDom; PD00006; ABC transporter; 1.
SMART; SM00382; AAA; I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PGLNATGNNPCNYATCTGEEYLVK 616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    589 GGSNTSMLNHPMCAITQGVQFIEK 612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL; U13645; AAA20989.2; -
WormPep; C05D10.3; CE29170.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Caenorhabditis elegans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A. STRAIN=Bristol N2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CAEEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REVISIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NP BIND
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TRANSMEM
TRANSMEM
                                                                                                                                                                                              420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        C05D10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 13
YPC3_CAEEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           д
2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PATTT TAREAU BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BERNER BER
                                                                                                                                                                                                                                            요
                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                            d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   d
                                                                                                                                   g
                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                     ઠે
                                                                                                                                                                                                                                                                                               This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the BMIS outstation the Buropean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRYSIFKLFDSLTLLASGRIMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIINGDSTA 304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              305 'VALNRE-EDFKATEIIEPSKODKPLIEKLAEIYVNSSFYKETKAELHOLSGGEKKKKITV 363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VODDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGTQFIR 184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSG----FLPCRKPVEKEILSNI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LEÓGSVTGTEARHS-----LGVLHVSYSVSNRVGPWWNIKSCOOKWDRQILKDV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        68 NGIMKPG-LNAILGPTGGGKSSLLDVLAARKDPSG-LSGDVLINGAP-RPANFKCNSGYV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GVSGGERKRISIGMELIIDPSILFLDEPTIGLDSSTANAVLLLLKRMSKQGRTIIFSIHQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 694.5; DB 1; Length 652;
Pred. No. 3.7e-40;
2; Mismatches 246; Indels 55; Gaps
SUBUNIT: May form heterodimers with ABCG8 or be tightly coupled t ABCG8 along a pathway regulating diatery-sterol absorption and excretion (By similarity).

SUBCELUIAR LOCATION: Integral membrane protein (Probable).

TISSUE SPECIFICITY: Expressed in the intestine and, at lower level, in the liver.

INDUCTION: Upregulated by cholesterol feeding. Possibly mediated by the liver X receptor/retinoic X receptor (LXR/RXR) pathway.

SIMILARITY: Belongs to the ABC transporter family. ABCG (White) subfamily.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4 (POTENTIAL).
CYTOPLASNIC (POTENTIAL).
SCHORENIAL).
EXTRACELLULAR (POTENTIAL).
CYTOPLASNIC (POTENTIAL).
ATP (POTENTIAL).
N-LINKED (GLCNAC...) (POTENTIAL).
N-LINKED (GLCNAC...) (POTENTIAL).
N-LINKED (GLCNAC...) (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2 (POTENTIAL).
CYTOPLASMIC (POTENTIAL).
3 (POTENTIAL).
EXTRACELLULAR (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .LINKED (GLCNAC. . .) (POS 80CE37ADCC19771E CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EXTRACELLULAR (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PROSITE; PS00211; ABC TRANSPORTER 1; 1.
PROSITE; PS50893; ABC TRANSPORTER 2; 1.
ATP-binding; Glycoprofein; Transmembrane; Transport.
DOMAIN 1 385 CYTOPLASMIC (POTENTIAL).
TRANSMEM 386 406 I (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL, AF312713; AAG53097.1; -. MGD; MG1:1351659; ABG5.
InterPro; IPR003593; AAA ATPase.
InterPro; IPR003439; ABC_transporter.
Pfam; PF000005; ABC_tran; 1.
ProDom; PD000006; ABC_transporter; 1.
SMART; SM00382; AAA; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative 142;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        73244 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        20.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Best_Local Sim:
Matches 181;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DOMAIN
TRANSMEM
DOMAIN
TRANSMEM
DOMAIN
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DOMAIN
TRANSMEM
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TRANSMEM
DOMAIN
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DOMAIN
NP BIND
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                           <u>+</u>
```

ద

ò

셤

ઠે

ò 유 à 요 ò 硆 8

```
290:1771-1775 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Patel S.B.;
                                           SEQUENCE
                                                                                                                                                                                                                                                                                            REVIEW
    14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                        185 NGMIVIITHQPSSHVYSLFNNVCLMACGRVIYLGPGDQAVPLFEKCGYPCPAYYNPADH 244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               245 LIRTLAVIDSD------RATSM-----KTISKIRQGFLSTDLGQSVLAIGN 284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             348 -- BLHQLS---GGEKKKKITVFKEISYTTSFCHQLRWVSKRSFKNLLGNPQASIAQIIVT 402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   :: : | :: | :: | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          582 OHNEFLGONFCPGLNATGNNPCNYATCTGEEYLVKOGIDLSPWGLWKNHVALACMIVIFL 641
                                                                                                                                                                                                                                              117 -FKCNSGYVVQDDVVMGTLTVRENLQFSAALRLATT-MTNHEKNERINRVIQELGLDKVA 174
                                                                                                                                                                                                                                                                        65 KIREMSAFVQQHDMFVGTWTAREHLQFMARLRMGDQYYSDHBRQLRVEQVLTQMGLKKCA 124
                                                                                                                                                                                                                                                                                                                                    DSKVG-TQFIRGVSGGERKRTSIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSK 233
                                                                                                                                                                                                                                                                                                                                                                                  125 DTVIGIPNQLKGLSCGEKKRLSFASFILTCPKILFCDEPTSGLDAFWAGHVVQALRSLAD 184
                                                                                                                                                                                                                                                                                                                                                                                                                                234 QGRTIIFSIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADF 293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       294 F---LDIINGDSTAVALNREEDFKATEIIEPSKQDKPLIEKLAEIYVNSSFYKETKA--- 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      285 ANKLRAASFVIGSDISEKIKIFFNQDYNASFWIQFLALFWRSWLTVIRDPNLLSVRLLQI 344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VVLGLVIGAIYFGLKNDSTGIQNRAGVLFFLTTNQCFS-SVSAVELFVVEKKLFIHEYIS 461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 524 AINEWDSIKVIPECFNSSMTAFALDSCPKNGHQVLESIDFSASHKIFDISILFGMFIGIR 583
                                                                                                                                                                                    7 KEILHNVSGMAESGKLLAILGSSGAGKTTLMVVLTSRNLTNLDVQGSILIDG--RRANKW 64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     405 GVYRTSAYFLAKNIAELPQYILLP-ILYNTIVYWMSGLYPNFWNYCFASLVTILITNVAI
                                                                                                                                                          61 KEILSNINGIMKPG-LNAILGPTGGGKSSLLDVLAARKDPS-GLSGDVLINGAPRPAN--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GYYRVSSYFLGKLLSDLLPMTMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMMVAYSAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SMALAIAAGGSVVSVATLLMTICFVFMMIFSGLLVNLTTIASWLSWLQYFSIPRYGFTAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Homo sapiens (Human).
Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Buteleostomi;
Mammalia, Eutheria, Primates; Catarrhini, Hominidae, Homo.
NCBI_TaxID=9606;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TISSUE-Liver;
MEDLINE=20553648; PubMed=11099417;
MEDLINE=20553648; PubMed=11099417;
Berge K.E., Tian H., Graf G.A., Yu L., Grishin N.V., Schultz J.,
Kwiterovich P., Shan B., Barnes R., Hobbs H.H.;
"Accumulation of dietary cholesterol in sitosterolemia caused by
mutations in adjacent ABC transporters.";
                                                                                                              43;
                                                                   DB 1; Length 598;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Z8-FEB-2003 (Rel. 41, Created)
28-FEB-2003 (Rel. 41, Last sequence update)
10-OCT-2003 (Rel. 42, Last annotation update)
ATP-binding cassette, sub-family G, member 5 (Sterolin-1).
                                                                                                              Indels
  POTENTIAL.
9D6414E06898E343 CRC64;
                                                              Query Match 20.5%; Score 686.5; DB 1;
Best Local Similarity 30.3%; Pred. No. 1.2e-39;
Matches 186; Conservative 124; Mismatches 261;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             651 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A., AND VARIANT GLU-604.
  498 P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   642 TIAYLKLLFLKKYS 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |||: || :: |:
584 IIAYVALL-IRSYN 596
  478 4
598 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HUMAN
  TRANSMEM
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ઠે
                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                       엄
                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                               ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ठे
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ઠે
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the Buropean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SUBUNIT: May form heterodimers with ABCG8 or be tightly coupled to ABCG8 along a pathway regulating diatery-sterol absorption and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -:- SUBCELLUIAR LOCATION: Integral membrane protein (Probable).
-:- TISSUE SPECIFICITY: Strongly expressed in the liver, lower levels in the small intestine and colon.
-:- DISEASE: Defects in ABGGS are a cause of sitosterolemia (MIM:210250]; also known as phytosterolemia or shellfish sterolemia, it is a rare autosomal recessive disorder characterized by increased intestinal absorption of all sterols including cholesterol, plant and shellfish sterols, and decreased biliary excretion of dietary sterols into bile. Sitosterolemia patients have hypercholesterolemia, very high levels of plant sterols in the plasma, and frequently develop tendon and tuberous xanthomas, accelerated atherosclerosis and premature coronary
                                                                                                                                                                                                                                                                     Ë
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "Two genes that map to the STSL locus cause sitosterolemia: genomic structure and spectrum of mutations involving sterolin-1 and sterolin-2, encoded by ABCGs and ABCGs, respectively.";
Am. J. Hum. Genet. 69:278-290(2001).
-!- FUNCTION: Transporter that appears to play an indispensable role in the selective transport of the dietary cholesterol in and out of the enterocytes and in the selective sterol excretion by the liver into bile.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE-21474438; PubMed=11590207; Schnitz G., Langmann T., Helmerl S.; "Role of ABCG1 and other ABCG family members in lipid metabolism."; J. Lipid Res. 42:1513-1520(2001).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SIMILARITY: Belongs to the ABC transporter family. ABCG (White)
                                                                                                                                                                                       MEDLINE=20578753; PubMed=11138003; Lice M.-H., Lw. K., Hazard S., Yu H., Shulenin S., Hidaka H., Kojin Lice M.-H., Lu K., Hazard S., Yu H., Shulenin S., Hik, Salen G., Dean M., Patel S.B.; Pegoraro R., Srivastava A.K., Salen G., Dean M., Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.B.; Patel S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SER-550, AND VARIANT GLU-604.
MEDLINE=2134660; PubMed=11452359;
Lu K., Lee M.-H., Hazard S., Brooks-Wilson A., Hidaka H., Kojime
Ose L., Stalenhoef A.F.H., Mietinnen T., Bjorkhem I., Bruckert Pandya A., Brewer H.B. Jr., Salen G., Dean M., Srivastava A.K.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VARIANTS SITOSTEROLEMIA GLN-146; HIS-389; PRO-419; HIS-419 AND
FROM N.A., VARIANTS SITOSTEROLEMIA HIS-389; HIS-419 AND VARIANT GLU-604.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PROSITE; PS00211; ABC_TRANSPORTER_1; FALSE_NEG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MIM; 210250; -.
GO; 0030299; P:cholesterol absorption; InterPro; IPR003593; AAA_ATPase.
InterPro; IPR003439; ABC_transporter.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pfam; PF00005; ABC tran; 1.
ProDom; PD000006; ABC transporter; 1.
SMART; SM00382; AAA; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL; AF320293; AAG40003.1; -. EMBL; AF312715; AAG53099.1; -. Genew; HGNC:13886; ABCG5.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 artery disease.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 subfamily.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      excretion
                                                                                                                                             rissum=Liver;
```

us-09-961-086-1.rsp

```
538 TLLMTICEVENMIFSGLLVNLTTIASWLSWLOYFSIPRYGFTALQHNEFLGQNFCPG--- 594
                                       610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL; AF312714; AAG53098.3; -.
EMBL; AY145899; AAM4275.1; -.
InterPro; IPR00359; AAB ATPase.
InterPro; IPR003439; ABC_transporter.
                                                                                                        PRT;
                                                  SVTINPMCAFIQGIQFIEKTCPG
                                      LNATGNNPCNYA-----TCTG
                                                                                                                                                                             Rattus norvegicus (Rat).
                                                                                                        STANDARD;
                                                                                                                                                                                                                    [1]
SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                           REVISION TO 2.
                                       595
                                                                                                         RAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 +++
                                                                                                                   셤
                g
                                     ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           414
                                                                                                                                                                                                                                                                                                                                                                                                                          SGQIMCILGSSGSGKTTLLDAMSGRLGRAGTFLGEVYVNGRALRREQFQDCFSYVLQSDT 137
                                                                                                                                                                                                                                                                                                                                                                                                                                             VMGTLIVRENLQFSAALRLATIMINHEKNERINRVIQELGLDKVADSKVGTQFIRGVSGG 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIINGDSTAVALNR 309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EEDFKATEIIEPSKQDKPLIEKLAEIYVNSSFYKETKAELHQLSGGEKKKKITVFKEISY 369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ERE-----IETSKR----VQMIESAYKKSAICHKT-----LKNIERMKHLKTLPMVPF 356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AIQDRVGLLYQFVGATPYTGMLNAVNLFPVLRAVSDQESQDGLYQKWQMMLAYAL-HVLP 473
                                                                                                                                                                                                                                                                                                                                                                               SOGNINGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVEKEILSNINGIMK 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                           ERKRISIGMELITDPSILFLDEPTIGLDSSTANAVLLLLKRMSKQGRTIIFSIHQPRYSI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GIONRAGVLF-FLTTNOCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MIMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLM---MVAYSASSMALAIAAGQSVVSVA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              :::::||:::|||:::|||
FSUVAIMIFSSUCYWILGIHPEVARFGYFSAALLAPHLIGEFLILULLGIVQNPNIVNSV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PG-LNAILGPTGGGKSSLLDVLAARKDPSG-LSGDVLING-APRPANFKCNSGYVVQDDV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TT----SFCHQLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDST----
           Transmembrane; Transport; Polymorphism;
                                                                                                                                     6 (POTENTIAL).
CYTOPLASMIC (POTENTIAL).
PAPE (POTENTIAL).
N-LINKED (GLCNAC. .) (POTENTIAL)
N-LINKED (GLCNAC. .) (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                55,
                                                                                                                                                                                                                                                                                                                            Length 651;
                                                                                                                                                                          N-LINKED (GLCNAC. .) (POTEN:
E -> Q (in strosterolemia).
FTIGEVAR 0.1224.
R -> H (in sitosterolemia).
FTIGEVAR 0.12245.
R -> H (in sitosterolemia).
FTIGEVAR_012245.
                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                             R -> P (in sitosterolemia). /FTId=VAR 012247.
                                                                                                                                                                                                                                                        /FTId=VAR_012247.
R -> S (in sitosterolemia)
/FTId=VAR_012248.
                                                                                                                                                                                                                                                                                              FTIG=VAR 012249.
950BABFCBB6A1536 CRC64;
                                                                                                                           EXTRACELLULAR (POTENTIAL)
                                                                           3 (POTENTIAL).
EXTRACELLULAR (POTENTIAL)
                                        1 (POTENTIAL).
EXTRACELLULAR (POTENTIAL)
                                                         2 (POTENTIAL).
CYTOPLASMIC (POTENTIAL).
                                                                                                     cytoplasmic (Potential).
5 (POTENTIAL).
                              CYTOPLASMIC (POTENTIAL)
                                                                                                                                                                                                                                                                                                                            DB 1;
                                                                                                                                                                                                                                                                                                                                     Local Similarity 29.2%; Pred. No. 2.5e-39; nes 182; Conservative 138; Mismatches 249;
                                                                                                                                                                                                                                                                                                                           20.4%; Score 682.5; DB 1
29.2%; Pred. No. 2.5e-39;
                                                                                               4 (POTENTIAL)
  ABC TRANSPORTER 2;
                                                                                                                                                                                                                                                                                                         72503 MW;
                                                                                                                                                                                                                                                419
                                                                                                                                                                                                                                                                   550
                                                                                                                                                                                                                             419
                                                                                                                                                                                                                                                                                     604
                                                                                                                                                                                                                                                                                                          651 AA;
           ATP-binding; Gly
Disease mutation
                                                                                                                                                                                                                                                419
                                                                                                                                                                                                                                                                 550
                                                                                                                                                                                                                                                                                     604
                                                                                                                                                                                                        389
                                                                                                                                                                                                                                                                                                                                      Best Local Sim
Matches 182;
                             DOMAIN
TRANSMEM
DOMAIN
                                                         TRANSMEM
DOMAIN
TRANSMEM
                                                                                     DOMAIN
TRANSMEM
DOMAIN
TRANSMEM
DOMAIN
TRANSMEM
                                                                                                                                              DOMAIN
NP BIND
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        370
                                                                                                                                                                                                                                                                                                                                                                   13
                                                                                                                                                                                                                                                                                                                                                                                                        73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           357
                                                                                                                                                                                                                                                                                                         SEQUENCE
                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                        VARIANT
                                                                                                                                                                                                         VARIANT
                                                                                                                                                                                                                            /ARIANT
                                                                                                                                                                                                                                                /ARIANT
                                                                                                                                                                                                                                                                   /ARIANT
                                                                                                                                                                                                                                                                                     VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
  ઠે
                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ઠે
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the ENELL outstation the Buropean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
liver into bile.
SUBUNIT: May form heterodimers with ABCG8 or be tightly coupled to ABCG8 along a pathway regulating diatery-sterol absorption and excretion (By similarity).
SUBCELLULAR LOCATION: Integral membrane protein (Probable).
TISSUE SPECIFICITY: Expressed only in liver and intestine.
POLYMORPHISM: The polymorphism at position 581 is found in strains SHR. SHRSP and Wistar Kyoto which are both hypertensive and sitosterolemic. Strains which are hypertensive but not sitosterolemic do not contain a polymorphism at this position.
SINILARITY: Belongs to the ABC transporter family. ABCG (White)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ή.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A., TISSUE SPECIFICITY, AND VARIANT CYS-583.
STRAIN=GH, SHR, SHRSP, Sprague-Dawley, Wistar, Wistar Kyoto, and WKA, Put H., Pandit B., Klett E., Lee M.H., Lu K., Helou K., Ikeda I., Egashira N., Sato M., Klein R., Batta A., Salen G., Patel S.B.; The rat STSL locus: characterization, chromosomal assignment, and genetic variations in sitosterolemic hypertensive rate.", and EMC Cardiovasc. Disord. 3:4-4(2003).

-I. FUNCTION: Transporter that appears to play an indispensable role in the selective transport of the dietary cholesterol in and out of the enterocytes and in the selective sterol excretion by the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi, Mammalia, Eutheria, Rodentia, Sciurognathi, Muridae, Murinae, Rattus.
NCBI_TaxID=10116;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        important in the regulation of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRAIN=Sprague-Dawley, TISSUE-Small intestine;
MEDLINE=20578753; PubMed=11138003;
Lee M.-H., Lu K., Hazard S., Yu H., Shulenin S., Hidaka H., Kallikmets R., Salen G., Seyoraro R., Srivastava A.K., Salen G. Dean M., Patel S.B.;
"Identification of a gene, ABCG5, important in the regulation dietary cholesterol absorption.";
Nat. Genet. 27:79-83(2001).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0999F7; Q8CIQ4;
28-FBB-2003 (Rel. 41, Created)
10-OCT-2003 (Rel. 42, Last sequence update)
10-OCT-2003 (Rel. 42, Last annotation update)
ATP-binding cassette, sub-family G, member 5 (Sterolin-1).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Lu K., Lee M.-H., Patel S.B.;
Submitted (AUG-2002) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                         652 AA.
```

```
243 NRIVIVITHQPRSELFHHFDKIAILITYGELVFCGTPEEMLGFFNNCGYPCPEHSNPFDFY 302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     354 GGEKKKKITVFKEISYTTS----FCHQLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLV 408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     342 NIERTRHIKTLPMVPPKTKNPPGMFC-KLGVLLRRVTRNLMRNKQVVIMRLVQNLIMGLF 400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           409 IGAIYFGLKNDST----GIQNRAGVLFFLTTNQCFSS-VSAVELFVVEKKLFIHEYISGY 463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 464 YRVSSYFLGKLLSDLLPMTMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLM---MVAYSA 520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                521 SSMALAIAAGOSVVSVATLIMTICFVFMMIFSGLLVNITTIASWLSWLQYFSIPRYGFTA 580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        58 PVEKEILSNINGIMKPGLN-AILGPTGGGKSSLLDVLAARKDPSG-LSGDVLINGAP-RP 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              64 XWDRKILKDVSLYIESGQTMCILGSSGSGKTTLLDAISGRLRRTGTLEGEVFVNGCELRR 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    115 ANFKCNSGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVA 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                175 DSKVGTQFIRGVSGGERKRTSIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSKQ 234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                235 GRIIIFSIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFF 294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        295 LDIINGDSTAVALNRE-EDFKATEIIEPSKODKPLIEKLAEIYVNSSFYKETKAELHQLS 353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2 SSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSG----FLPCRK 57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              21 SQSSLE------EGSVTGSEARHS------LGVLNVSFSVSRRVGPWMNIKSCQQ 63
                                                                                                                                                                                                                                                 1 (POTENTIAL).

EXTRACELLULAR (POTENTIAL).

2 (POTENTIAL).

CYTOPLASMIC (POTENTIAL).

3 (POTENTIAL).

EXTRACELLULAR (POTENTIAL).

4 (POTENTIAL).

CYTOPLASMIC (POTENTIAL).

5 (POTENTIAL).

EXTRACELLULAR (POTENTIAL).

6 (POTENTIAL).

CYTOPLASMIC (POTENTIAL).

ATP (POTENTIAL).

CYTOPLASMIC (POTENTIAL).

N-LINKED (GLCNAC. .) (POTENTIAL).

N-LINKED (GLCNAC. .) (POTENTIAL).

N-LINKED (GLCNAC. .) (POTENTIAL).

G -> C (in strains SHR, SHRSP and Wistar Kyolo).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
20.4%; Score 682.5; DB 1; Length 652;
Best Local Similarity 28.9%; Pred. No. 2.5e-39;
Matches 185; Conservative 142; Mismatches 237; Indels 77; Gaps
Pfam; PF00005, ABC tran; 1.
Prodom; PD000006, ABC transporter; 1.
SMART; SM00382; AAA; I.
PROSITE; PS00211; ABC TRANSPORTER 1; 1.
PROSITE; PS50893; ABC TRANSPORTER 2; 1.
PROSITE; PS50893; ABC TRANSPORTER 2; 1.
ATP-binding; Glycoprofein; Transmembrane; Transport; Polymorphism.
ATP-binding; Glycoprofein; Transmembrane; CYTOPLASMIC (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LVVNEFYGLNFTCGGSNTSVPNNPMCSMTQGIQFIEKTCPG 616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   581 LOHNEFLGONF-CPGLN-ATGNNP-CNYA-----TCTG 610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              49FEF7372269299D CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  73372 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  652 AA;
                                                                                                                                                                                                                                                                                                                                                            DOMAIN
TRANSMEM
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NP BIND
CARBOHYD
CARBOHYD
VARIANT
                                                                                                                                                                                                                                                                                          DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                         TRANSMEM
DOMAIN
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DOMAIN
TRANSMEM
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ਨੇ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                  DORRAN TERESTANDORRAN SOLUTION SECTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ઠ
```

Search completed: March 23, 2004, 18:30:03 Job time : 20 secs

GenCore version 5.1.6 Copyright (c) 1993 - 2004 Compugen Ltd.

OM protein - protein search, using sw model

Run on:

March 23, 2004, 18:27:43 ; Search time 20 Seconds (Without alignments) 3150.272 Million cell updates/sec

US-09-961-086-1 3352 1 MSSSNVEVPIPVSQGNTNGF......MIVIFLTIAYLKLLFLKKYS 655 Title: Perfect score:

Sequence:

Scoring table:

283366 segs, 96191526 residues BLOSUM62 Gapop 10.0 , Gapext 0.5 Searched: Total number of hits satisfying chosen parameters:

Minimum DB seq length: 0 Maximum DB seq length: 200000000

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

PIR 78:*
1: pirl:*
2: pir2:*
3: pir3:* Database

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

	Description	brain multidrug re	ATP-dependent perm	white protein - fr	ABC transporter-li	probable ABC trans	hypothetical prote	able ABC	7	ABC transporter-li	ğ	ABC transporter-li	hypothetical prote		probable ATP-bindi	probable ABC trans	white homolog - hu	ATP binding casset	prot	ABC transporter-li	protein C05D10.3 [probable ABC trans	hypothetical prote	Ö	ABC transporter-li	probable membrane	ABC transporter-li	protein Fi2M16.17	hypothetical prote	ABC-type transport
S																														
SUMMARIES																									_	_	_		_	_
SUM	01	JC7860	319421	FYFFW	F46101	286441	D96553	484509	147652	r45891	H96552	147650	F08934	G84791	T02567	E96742	302068	JC7777	T31543	T4764 8	B88474	C84423	E86313	T34391	4764	7769	588	B96573	918	0422
	DB	2					~																		N	C)	N	7	N	N
	Length [656	1049	687	737	646	687	649	725	739	678	708	635	755	740	609	638	646	547	720	559	725	629	608	662	1294	1450	590	633	577
d	Query Match I	L LO	44	4	m	m	22.9	\sim	N	N	N	ч	м	П	н	Н	н	-	$\overline{}$	н	0	0	0	g,	σ	ď	e,	σ	9	19.3
	Score	2849.5	835.5	812	800.5	774	767.5	746	745	741.5	739	726.5	721	720.5	717.5	712.5	710	708	707.5	707.5	677	676	699	664	660	658.5	657.5	656.5	649.5	645.5
	Result No.		8	٣	4	'n	9	7	œ	σ	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29

RESULT 1

Matches	U U	; conse	rvative		Matches 553; Conservative 44; Mismatches 58; Indels	000	Tuders		L; cape	. ·
ò	1	MSSSNVEVI	FIPVSQGNTN	GFPAT.	1 MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE	AVLSFHN	ICYRVKLKS	SGFLP	CRKPVE	09
Db	М	MSSNSYQVE	SIPMSKRNTN	GLPGS	SSNELKTSAGG	AVLSFHD	ICYRVKVKS	SGFLF(CRKTVE	09
δδ	61	KEILSNING	GIMKPGLNAI	LGPTG	61 KEILSNINGIMKPGLMAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN 120	ARKOPSG	LSGDVLING	GAPRE/	ANFKCN	120
QQ	61	KEILTNING	GIMKPGLNAI	LGPTG	GGKSSLLDVLA	ARKDPHG	TSGDATING	SAPRE	ANFKCN	120
È	121	SGYVVQDD	VVMGTLTVRE	NLOFS	121 SGYVVQDDVVMGTLTVRENLQFSAALRLATIMINHEKNERINRVIQELGLDKVADSKVGT 180	HEKNERI	NRVIQELGI	LDKVA	DSKVGT	180
qq	121	SGYVVQDDV	VVMGTLTVRE	NLOFS	SGYVVQDDVVMGTLTVRENLQFSAALRLFTTMTNHEKNERINNVIQELGLDKVADSKVGT 180	HEKNERI	NMVIQELGI	CDKVA	DSKVGT	180
λò	181	OFIRGVSG	GERKRISIGM	ELITD	181 QFIRGVSGGERKRISIGMELITDPSILFLDEPTIGLDSSTANAVLLLIKRMSKQGRTIIF 240	GLDSSTA	NAVLLLLKG	RMSKQ	GRTIIF	240
Db	181	QFIRGVSG	GERKRISIAM	ELITD		GLDSSTA	NAVLLLLK	RMSKQ	GRTIIF	240
ò	241	SIHOPRYS	IFKLFDSLTL	LASGR	241 SIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING 300	GYFESAG	YHCEAYNN	PADFE	LDIING	300
QC QC	241	SIHOPRYS	IFKLFDSLTL	LASGR	LIIIIII KLMFHGPAREAL(SYFASIG	YNCEPYNN	PADFE	LDVING	300

360 KITVFKEISYTTSFCHQLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKND 419

301 DSTAVALNR-EEDFKATEIIEPSKODKPLIEKLAEIYVNSSFYKETKAELHQLSGGEKKK

à g 상 점

```
A, Molecule type: DNA
A; Residutes: 1-24, 'LIFEIPYHCRUTAD', 30-334,'ITLHLNSYPAWVPSVLPTTIRRTFTYRCWPLCPDGRSSPVIGSPR
A; Cross-references: EMBL:X02974
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 white protein - fruit fly (Drosophila melanogaster)
C;Species: Drosophila melanogaster
C;Species: J1-Dec-1990 # Requence revision 17-Feb-1995 #text_change 19-Jan-2001
C;Accession: S06635; S07263; S10240
R;Pepling, M.; Mount, S.W.
Nucleic Acids Res. 18, 1633, 1990
A;Title: Sequence of a cDNA from the Drosophila melanogaster white gene. A;Reference number: S08635; MUID:90221897; PMID:2109311
A;Accession: S06635
A;Molecule type: mRNA
A;Residues: 1-687 < PEP>
A;Cross-references: EMBL:X51749; NID:98825; PIDN:CAA36038.1; PID:98826
R;O'Haace, K.; Murphy, C.; Levis, R.; Rubin, G.M.
J; Mol. Biol. 180, 437-455, 1984
A;Reference number: S07263; MUID:85134865; PMID:6084717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -----ATILSTFGFVVQNLVFDIK-----ILALFNVVFLIM 1036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             703 LLRDEEDVEGTDGRRGATEIDLNTKLLHDK----YKDSVYYAELSQEIBEVLSBGDEESN 758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IT--VFKEISYTTSFCHOLRWSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKN 418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   587 IGQNF-CPGLNATGNNPCNYATCTGBEYLVKQGI--DLSPWGLWKNHVALACMIVIFLTI 643
402
                                                                                                  KEILSNINGIMKPG-LNAILGPIGGGKSSLLDVLAARKDPSGLSGDVLINGAPRP-ANFK 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      643 TFEAGPOGKRRRIRNISDLEAGTDTNDIDNTIHQTTFTSSDGTTQREWAHLAAHRDEIRS 702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DSTGIQNRAGVLFFLTINQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDL 478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LPMTMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGQSVVSVAT
---ATLSFENITYSVPSINS----DGVE
                                                                                                                                                                                                                                                                                                                                                             |:| |:| |:| || | :: || || | :: || || | :: | | |: | | :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         UGDSTAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              306 ALNREEDFKATE----IIEPSKODKPLIEKLAEIYVNSSFYKETKAELHO-LSGGEKKKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               : : | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | : | | : | : | | : | : | | : | : | | : | : | | : | : | : | | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LIMTICEVERMIFSGLLV---NLTTIASWLOYFSIPRYGFTALOHNEF----
                                                                                                                                                              119 CNSGYVVQDDVVMGTLTVRENLQFSAALRLATTWTNHEKNERINRVIQELGLDKVADSKV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            523 GNEFDRGISGGEKRRVSIACELVISPLVLFLDEPTSGLDASNANNVIECLVRLSSDYNRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     238 IIFSIHOPRYSIFKLFDSLTLLASGRIMFHGPAQEALGYFESAGYHCEAYNNPADFFLDI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTOFIRGVSGGERKRISIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSKQ-GRT
355 LGSSKSPIRLP-DEDAVNNFLQNEDDTL--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       997 YĞLNIEVPĞ----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1037 GYLALKWI 1044
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               644 AYLKLLFL 651
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          813
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Accession:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  \dot{\delta}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                              유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; Contents: annotation of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the conte
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         the right arm
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                F/423-430/Region: nucleotide_binding motif A (P-loop)
F/550-557/Region: nucleotide-binding motif B
F/550-557/Region: nucleotide-binding motif B
F/540-810/Domain: transmembrane #status predicted <TM2>
F/829-845/Domain: transmembrane #status predicted <TM4>
F/879-894/Domain: transmembrane #status predicted <TM4>
F/879-925/Domain: transmembrane #status predicted <TM6>
F/938-954/Domain: transmembrane #status predicted <TM6>
F/938-954/Domain: transmembrane #status predicted <TM6>
F/938-954/Domain: transmembrane #status predicted <TM6>
F/930-925/Domain: transmembrane #status predicted <TM7>
F/930-925/Domain: transmembrane #status predicted <TM7>
F/930-925/Domain: transmembrane #status predicted <TM7>
F/930-925/Domain: transmembrane #status predicted <TM7>
F/930-925/Domain: transmembrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         18;
                                                                                                                                                                                                                                                                           PMIMIPSIIFICIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGQSVVSVATL 539
                                                                                                                                                                                                                                                                                                                                                                                                                   LMTICEVEWMIFSGLLVNLTTIASWLSWLOYFSIPRYGFTALOHNEFLGONFCPGLNATG 599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATP-dependent permease ADP1 precursor - yeast (Saccharomyces cerevisiae)
N;Alternate names: protein YCR011c; protein YCR105
C;Species: Saccharomyces cerevisiae
C;Date: 31-Mar-1992 #sequence_revision 31-Mar-1992 #text_change 19-Jan-2001
C;Accession: S19421; S40914
R;Goffeau, A.; Purnelle, B.; Skala, J.
submitted to the Protein Sequence Database, March 1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STGIQNRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NNPCNYATCIGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKLLFLKKYS 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Accession: S40914
A;Status: not compared with conceptual translation
A;Molecule type: DNA
A;Residues: 1-1049 < PUR>
R;Skala, J.; Purnelle, B.; Goffeau, A.
R;Skala, J.; Purnelle, B.; Goffeau, A.
R;Stale: B, 409-417, 1992
A;Title: The complete sequence of a 10.8 kb segment distal of SUF2 on t K genes.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels 115;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 1049;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                genes.
Reference number: S25353; MUID:92327849; PMID:1626432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            / Match 24.9%; Score 835.5; DB 1; Local Similarity 30.5%; Pred. No. 3e-51; hes 222; Conservative 134; Mismatches 257;
                                                                                                                                                                                                                                                                                                                                                                                                                              540
                                                                                                                                                                                                               480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                       g
                                                                                                                                                                                                               ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                         ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
```

1 MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE

ò

Lemcke, K.; Mayer

179 134

74

194

```
SLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIINGDSTAVALNREEDFK 314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         360 KLVVLSRGSLLYFGKASEAMSYFSSIGCSPILLAMNPAEFILLDLVNGNMNDIS------411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   357 KKKKITVFKE---ISYTTSFC-HOLRWYSKRS---FKNLLGNPQASIAQIIVTVVLGLVI 409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                528 AAGQSVVSVATLLMTICFVFMMIFSGLLVNLTTIASWLSWLQYFSIPRYGFTAL---QHN 584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    635 GASLMDLKKATTLASVTVMTFMLAGGYFVK--KVPFFIAWIRFMSFNYHTYKLLVKVQYE 692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 585 EFLGQNFCPGLNATGNNPCNYATCTGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTIA 644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   C:Species: Arabidopsis thaliana (mouse-ear cress)
C:Date: 04-Peb-2000 #sequence_revision 04-Peb-2000 #text_change 04-Peb-2000
C:Accession: T46101
R:Alcaraz, J.P.; Clabault, G.; Cottet, A.; Mache, R.; Mewes, H.W.; Lemcke, K.; Alcession: T46101
A:Reference number: Z23021
A:Reference number: Z23021
A:Status: Preliminary
A:Molecule Cype: DNA
A:Residues: 1-737 < ALC>
A;Residues: 1-737 < ALC>
A;Residues: Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Common and Commo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         180 ILALMGPSGSGKTTLLNALGGRPNQQNIGGSVSYNDKPYSKHLKTRIGFVTQDDVLFPHL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       240 TVKETLITYTALLRLPKTLTEQEKEQRAASVIQELGLERCQDTMIGGSFVRGVSGGERKRV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        300 CIGNEIMTNPSLLLLDEPTSSLDSTTALKIVQMLHCIAKAGKTIVTTHQPSSRLFHRFD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       467 VKLMITCPKREWGLSWWEQYCLLSLRGIKERRHDYFSWL-----RVTQVLSTAI---IL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 410 GAIYFGLKNDSTGIQ-NRAGVLFFLTTNQCFSSV-SAVELFVVEKKLFIHEYISGYYRVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         195 SIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSKQGRTIIFSIHQPRYSIFKLPD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     315 ATEIIEPSKQDKPLIEKLAEIYVNS-----SFYKETKAELHQLS-----GGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       INAILGPIGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCNSGYVVQDDVVMGTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TVRENLOFSAALRLATTWTNHEKNERINRVIQELGLDKVADSKVGTOFIRGVSGGERKRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SYFLGKLLSDLLPMTMLPSIIFTCIVYFMLGLKPKADAFFVNMFTLMMVAYSASSMALAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DLKAFTEGAV------LSFHNICYRVKLKSGFLPCRKPVEKEILSNINGIMKPG-
                                                                                                                                                                                                                                                                                                                                                                                    A;Map position: 3
A;Introns: 122/1; 146/3; 225/2; 277/2; 338/3; 422/2; 535/1; 628/3; 664/3
A;Note: T25B15.80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 23.9%; Score 800.5; DB 2; Length 737; Best Local Similarity 31.4%; Pred. No. 5.6e-49; Matches 211; Conservative 132; Mismatches 227; Indels 101;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EIM-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  645 YLKLLFLKKYS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         YFSLRRMKLHS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           693
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   엽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ઠે
                                                                                                                          A; Accession: S10240
A; Molecule type: DNA
A; Residues: 1-24, 'LIFEIPYHCRVTAD', 30-687 < 0HA2>
A; Rossidues: 1-24, 'LIFEIPYHCRVTAD', 30-687 < 0HA2>
A; Residues: 1-24, 'LIFEIPYHCRVTAD', 30-687 < 0HA2>
A; Residues: 1-24, 'LIFEIPYHCRVTAD', 30-687 < 0HA2>
A; Residues: 1-24, 'LIFEIPYHCRVTAD', 310-687 < 0HA26716.1; PID:g10874
A; Residuental source: strain Canton S
C; Genetics:
A; Genetics:
A; Genetics: A; Genetics: RIYBase: FBgn0003996
A; Gross-references: FIYBase: FBgn0003996
A; Gross-references: FIYBase: FBgn0003996
A; Introns: 24/3; 116/1; 334/2; 439/3; 483/3
C; Superfamily: fruit fly white protein; ATP-binding cassette homology
C; Keywords: ATP; Blycoprotein; nucleotide-binding motif A (P-loop)
F; 113-317/Reqion: nucleotide-binding motif B
F; 261-265/Region: nucleotide-binding motif B
F; 67,93,472,554,651/Binding site: carbohydrate (Asn) (covalent) #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           INGDSTAVALNREEDFKATEIIEPSKODKPLIEKLAEIYVNSSFYKETKAELHOLSGGEK 357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LKNDSTGIQNRAGVLFFLTTNQCFSSVSA-VELFVVEKKLFIHEYISGYYRVSSYFLGKL 474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LSDLLPMTMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGQSVV 534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SVATLLMTICFVFWMIFSGLLVNLTTIASWLSWLOYFSIPRYGFTALOHNEFLGONFCPG 594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SNINGIMKPG-LNAILGPIGGGKSSLLDVLAARKDPSGL----SGDVLINGAPRPA-NFK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CNSGYVVQDDVVMGTLTVRENLQPSAALRLATTMTNHEKNERINRVIQELGLDKVADSKV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ARCAYVQQDDLFIGSLTAREHLIFQAMVRMPRHLTYRQRVARVDQVIQELSLSKCQHTII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IIFSIHOPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KKKITVFKEISYT--TSFCHQLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     74 NMDIFGAVNQ------PGSGWRQLVNRTRGLFCNERHI-------PAPR---KHLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTQ-FIRGVSGGERKRISIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSKQGRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NVEVFI PVSQGNTNGFPATASNDLKAFTEGAVLSFHNI CYRVKLKSGFLPCRKPVEKEIL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -LNATGNNPCNYATCTGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKL 648
                                             RiO'Hare, K.
submitted to the EMBL Data Library, June 1985
A;Reference number: $10240
A;Reference number: $10240
A;Molecule type: DNA
A;Residues: 1-24, 'LIFEIPYHCRVTAD', 30-687 < OHAZ>
A;Cross_references: EMBL.X02974; NID:gl0873; PIDN:CAA26716.1; PID:gl0874
A;Experimental source: strain Canton S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 687;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
24.2%; Score 812; DB 1; Length 68
Best Local Similarity 32.1%; Pred. No. 7.7e-50;
Matches 210; Conservative 134; Mismatches 251; Indels
                     Experimental source: strain Canton
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            쉱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       \dot{\delta}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     \dot{\delta}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               심
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
```

- Arabidopsis thaliana probable ABC transporter [imported] RESULT

ABC transporter-like protein - Arabidopsis thaliana N/Alternate names: protein T25B15.80

575

517 467 634

```
hypochetical protein F5D21.6 (imported) - Arabidopsis thaliana
C;Species: Arabidopsis thaliana (mouse-ear cress)
C;Bate: 02-Mar-2001 #sequence_revision 02-Mar-2001 #text_change 23-Mar-2001
C;Accession: D65528
C;Accession: D65528
R;Theologis, A.; Ecker, J.R.; Palm, C.J.; Federspiel, N.A.; Kaul, S.; White, O.; Alonso Chin, C.W.; Chung, M.K.; Connay, A.B.; Conway, A.R.; Creasy, T.H.; Dewar, K. ansen, N.F.; Hughes, B.; Huizar, L.
Nature 408, 816-820, 2000
A;Authors: Hunter, J.L.; Jenkins, J.; Johnson-Hopson, C.; Khan, S.; Khaykin, E.; Kim, C.A.; Li, J.H.; Y.; Lin, X.Y.; Liu, Z.X.; Liu, Z.A.; Liuros, J.S.; Maiti, R.; Marziali Rizzo, M.; Rooney, T.; Rowley, D.; Sakano, H.
A;Authors: Salzberg, S.L.; Schwartz, J.R.; Shinn, P.; Southwick, A.M.; Sun, H.; Tallon, A;Title: Sequence and analysis of chromosome 1 of the plant Arabidopsis.
A;Accession: D96533
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-687 <STO>
A;Cross-references: GB:AE005173; NID:g10092349; PIDN:AAG12758.1; GSPDB:GN00141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Map position: 1
C,Superfamily: Arabidopsis thaliana probable ATP-binding cassette protein F12L6.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GFWTFMSIGGFPSFIEEMKVFYKERLSGYYGVSVYIISNYVSS-FPFLVAIALITGSITY 479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    21,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CEVEMMIFSGLLVNLTTIASWLSWLQYFSIPRYGFTALQ---HNEFLGQNFCPGLNATGN 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----KKKKITVFKEIYANSSFYKEIKAELHQLSGGE------KKKKKITVFKEISYTTSFC 374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       || || : ::|::|:|| || ||::
LAGRLARNVIMTGNLLLNGKKARLDYGL-VAYVTQEDILMGTLTVRETITYSAHLRLSSD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ||:||||:|| || : || ::| ||:|||| :||||| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|| ||:|
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QEALGYFESAGYHCEAYNNPADFFLDIINGDSTAVALNREEDFKATEIIEPSKQDKPLIE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -QLRILIKRSFVNMCRDIGYYWSRIVIYIVVSFCVGTIFYDVGHSYTSILARVSCGGFIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   480 NMVKFRPGVSHWAFFCLNIFFSVSVIESLMMVVASLVPNFLMGLITGAGIIGI--IMMTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MINHEKNERINRVIQELGLDKVADSKVGTQFIRGVSGGERKRTSIGMELITDPSILFLDE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PITGLDSSTANAVLLLLKRMSKQ-GRIIIFSIHQPRYSIFKLFDSLTLLASGRLMFHGPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          : | | | : | | | : : : | : | | | | : IATSEIKARLVENYRRSVYAKSAKSRIRELASIEGHHGMEVRKGSEATWFK-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HOLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDSTGIQNRAGVLFFLT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TNOCESSVSAVELEVVEKKLFIHEYISGYYRVSSYFLGKLISDLLPMTMLPSIIFTCIVY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FMLGLKPKAD--AFF-----VMMFTLMMVAYSASSMALAIAAGOSVVSVATLLMTI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAVLSFHNICYRVKLKSGFLPCRKPVEKEILSNINGIMKPG-LNAILGPTGGGKSSLLDV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LAARKDPSG-LSGDVLINGAPRPANFKCNSGYVVQDDVVMGTLTVRENLQFSAALRLATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         77;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NPCNYATCTGBEYLVK-QGIDLSP---WGLWKNHVALACMIVIFLTIAYLK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 687;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
22.9%; Score 767.5; DB 2;
Best Local Similarity 32.6%; Pred. No. 1.1e-46;
Matches 212; Conservative 118; Mismatches 244;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Gene: F5D21.6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5
C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          \dot{\delta}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             \delta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
        C;Species: Arabidopsis thaliana (mouse-ear cress)
C;Species: Arabidopsis thaliana (mouse-ear cress)
C;Date. 02-Mar-2001
C;Accession: C86441
R;Theologis, A.; Ecker, J.R.; Palm, C.J.; Pederspiel, N.A.; Kaul, S.; White, O.; Alonso, Chin, C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.; C.W.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTF---ILSLLVVLXSVLVAQGLGLAFGALLMNIKQATTLASVTLVFLLAGGYYVQ--Q 562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   : || | |: | : | : | : | 348
VEYFSSLGFSTSLTVNPADLLLDLANGIPPDTQKETSEQEQKTVKETL-VSAYEKNISTK 348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    L-AEI-YVNSSFYKETKAELHQLSGGEKKKKITVFKEISYTTSFCHQL----RWVSKRS 384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LKAELCNAESHSYEYTKAAAKNI-------KSEQWCTTWWYOFTVILORGVRERR 396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDSTGIQNRAGVLFFLTTNQCFSSV-S 443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AVELFVVEKKLPIHEYISGYYRVSSYFLGKLLSDLLPMTMLPSIIFTCIVYFMLGLKPKA 503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LGYFESAGYHCEAYNNPADFFLDIING--DSTAVALNREEDFKATEIIEPSKQDKPLIEK 331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DAFFVMMFTLMMVAYS --- ASSMALATAAGQSVVSVATLLMTICFVFMMIFSGLLVNLTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IASWLSWLQYFSIPRYGFTALQHNEFLGQNFCPGLNATGNNPCNYATCT-----GEBY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGRLSKT-FSGKVWYNGQPFSGCIKRRTGFVAQDDVLYPHLTVWETLFFTALLRLPSSLT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             37 LSFHNICYRVKLK--SGFLPCRKPVEKEILSNINGIMKPG-LNAILGPTGGGKSSLLDVL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     94 AARKDPSGLSGDVLINGAPRPANFKCNSGYVVQDDVVMGTLTVRENLQFSAALRLATTMT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGLDSSTANAVLLLLKRMSKQGRTIIFSIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          70;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 646;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
23.1%; Score 774; DB 2; Length 64(
Best Local Similarity 33.5%; Pred. No. 3.6e-47;
Matches 213; Conservative 119; Mismatches 234; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LVK-QGIDLSPWGLWKNHVALACMIVIFLTIAYLKL 648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     614
```

임 à 유 à ద ò ద ठे g ò g à 셤 ठे g ₽ 셤 à

ò

-AGEPKMTGEQVINKIFGVQVTHSKWWDLSAIVLILVCYRILFFIVLKK 631

g

RESULT

ATP-

Bala Lington

RESULT 8

Ć.

```
ABC transporter-like protein - Arabidopsis thaliana
N;Alternate names: protein 726112.10
C;Species: Arabidopsis thaliana (mouse-ear cress)
C;Species: Arabidopsis thaliana (mouse-ear cress)
C;Date: 20-Apr-2000 #sequence_revision 20-Apr-2000 #text_change 19-May-2000
C;Accession: T47652
R;Monifort, A.; Casacuberra, E.; Puigdomenech, P.; Mewes, H.W.; Lemcke, K.; Mayer, K.F.
R;Monifort, A.; Casacuberra, E.; Puigdomenech, P.; Mewes, H.W.; Lemcke, K.; Mayer, K.F.
R;Monifort, A.; Casacuberra, E.; Puigdomenech, P.; Mewes, H.W.; Lemcke, K.; Mayer, K.F.
R;Monifort, D: 24471
A;Reference number: 224471
A;Reference number: 22471
A;Residues: 1-725 < AMON>
A;Residues: 1-725 < AMON>
A;Residues: 1-725 < AMON>
A;Residues: 1-725 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 < AMON>
A;Residues: 1-726 <
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SGGLEGFVFYCLLIYASFWSGSSVVTFISGVVPNIMLCYMVSITYLAYCLLLSGFYVRRD 602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ---KODKPLIEKLAEIYVNSSFYKETKAELHOLSGGEKKKKITVFKEISYTTSFCHOLRW 379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ----NNPCNYATC--TGEEYLVKQGI-DLSPWGLWKNHVALACMIVIFLTIAYLKLLF 650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NKLDODRSLSLKEA---INASV---SRGKL--VSGSSRSNPTSMETVSSYANPSLFETFI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LAKRYMKNWIRMPELVGTRIATVMVTGCLLATVYWKLDHTPRGAQERLTLFAFVVPTMFY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             72 VLNFNNLQYDVTLRRRFGFSRQNGVKTLLDDVSGEASDGDILAVLGASGAGKSTLIDALA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      95 ARKDPSGLSGDVLINGAP--RPANFKCNSGYVVODDVVMGTLTVRENLOFSAALRLATTM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TNHEKNERINRVIQELGLDKVADSKVGTQFIRGVSGGERKRTSIGMELITDPSILFLDEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ALGYFESAGYHCEAYNNPADFFLDII------NGDSTAVALNREEDFKATEIIEPS---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDSTGIQNRAGVLFFLTTNQCF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KPKADAFFVMMFTLMMVAYSASSMALAIAAGQSVVSVATLLMTICFVFMMIFSGLLVNLT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ---PGLNATG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLLPMTMLPSIIFTCIVYFMLGL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           36 VLSFHNICYRVKLKSGFLPCRKPVEKEILSNINGIMKPG-LNAILGPTGGGKSSLLDVLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   62;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 22.2%; Score 745; DB 2; Length 725; Best Local Similarity 29.3%; Pred. No. 5e-45; Matches 193; Conservative 130; Mismatches 274; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TIASWLSWLQYFSIPRYGFTALQHNEFLGQNFC---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           \delta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                  probable ABC transporter [imported] - Arabidopsis thaliana
Cispecies: Arabidopsis thaliana (mouse-ear cress)
Cispecies: Arabidopsis thaliana (mouse-ear cress)
Cispecies: 02-Feb-2001 #sequence_revision 02-Feb-2001 #text_change 16-Feb-2001
Cispecies: 02-Feb-2001 #sequence_revision 02-Feb-2001 #text_change 16-Feb-2001
Cispecies: 03-Feb-3001 #sequence_revision 03-Feb-2001
Cispecies: 03-Feb-3001
Cispecies: 03-Feb-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATP-E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A,Gene: At2g13610
A,Map position: 2
C,Superfamily: Arabidopsis thaliana probable ATP-binding cassette protein F12L6.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       585
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         : ||:| | : | |: | |: | : | : | FHNLKDDLKGARERVGLFAFILTFLLTSTIEALPIFLQEREILMKETSSGSYRVSSYAVA 468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KILSDILPMIMLPSIIFICIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAIAA--- 529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KEILSNINGIMKP-GLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAP-RPANFK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GDDSVRGISGGERRRVSIGVEVIHDPKVLILDEPTSGLDSTSALLIIDMLKAMAETRGRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               298 INGDSTAVALNREEDFKATEIIEPSKODKPLIEKLAEIYVNSSFYKETKAELHQLSGGEK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           I--ESITKQQRLQESRRAAHVLTP---QTTLQEKRSEDSQGES--KSGKFTLQQLFQQTR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     349 VADVGTWNIATEFTRDFANSRLEETMILTHRFSKNIFRTKELFACRTVQMLGSGIVLGLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     YFGLKNDSTG1QNRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NGLV-YLPFLLILAILFSTPVYWLVGLNPSFMAFLHFSLLIWILLYTANSVVVCFSALVP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ----GOSVVSVATILMTICFVFMMIFSGLLVNLTTIASWLSWLOYFSIPRYGFTALOHNE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NFIVGNSVISG---VMGSFF----PFSGYFISNHBIPGYWIFWHYISLFKYPFEGFLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FLGQNFCPGLNATGNNPCNYATCTGEEYLVKQGIDLSPWG---LWKNHVALACMIVIFLT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CNSGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        II FSIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            358 KKKI-TVFKEISYTTSFCH----QLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTQFIRGVSGGERKRISIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSK-QGRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 22.3%; Score 746; DB 2; Length 649; Best Local Similarity 33.5%; Pred. No. 3.6e-45; Matches 203; Conservative 116; Mismatches 239; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IAYLKL 648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              630 ISYVIL 635
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ծ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              \dot{\delta}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
```

272

251

311 322 371

152

191

131

94

13

212

439

423

483 499 542 559 599

ABC transporter-like protein - Arabidopsis thaliana

```
hypothetical protein F5D21.8 [imported] - Arabidopsis thaliana ($5pecies: Arabidopsis thaliana (mouse-ear cress) C;5pecies: Arabidopsis thaliana (mouse-ear cress) C;Accession: H96552 (Arar-2001 #sequence_revision 02-Mar-2001 #text_change 23-Mar-2001 C;Accession: H96552 (Arar-2001 #sequence_revision 02-Mar-2001 #text_change 23-Mar-2001 C;Accession: H96552 (Arar-2001 M.K.; Chung M.K.; Conn, L.; Conway, A.B.; Conway, A.R.; Creasy, T.H.; Dewar, K. ansen, N.F.; Hughes, B.; Huizar, L.; Conway, A.B.; Conway, A.R.; Creasy, T.H.; Dewar, K. Nature 408, 816-820, 2000 A;Authors: Hunter, J.L.; V. Lin, X.; Liu, S.X.; Liu, Z.A.; Luros, J.S.; Maiti, R.; Maiti, R.; Alathors: Salazberg, J.L.; Schwartz, J.R.; Shinn, P.; Southwick, A.M.; Sun, H.; Marziali Rizzo, M.; Wu, D.; Yu, G.; Fraser, C.M.; Whuner, J.C.; Davis, R.W. A;Authors: Salazberg, S.L.; Schwartz, J.R.; Shinn, P.; Southwick, A.M.; Sun, H.; Tallon, Ker, M.; Wu, D.; Yu, G.; Fraser, C.M.; Voterer, J.C.; Davis, R.W. A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H96552 A;Accession: H9655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              : ::: :: | | | :: | | | :: | | | :: | | | :: | | :: | | :: | :: | | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      YRVSSYFLGKILSDLLPMTMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMMVAYSASSM 523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 524 ALAIAAGOSVVSVATLLMTIC----FVFMMIFSGLLVNLTTIASWLSWLQYFSIPRYGFT 579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | | : : | : | : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : : | : : | : : | : : | : : | : : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    YGVAVYTVSNILSS-LPFIILMCLSTSSITIYMVRFQSGGSHFFYNCLDLICAITTVESC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61 KEILSNINGIMKPG-LNAILGPTGGGKSSLLDVLAARKDPSG---LSGDVLINGAPRPAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     28 KRILINGVNGCGEPNRILAIMGPSGSGKSTLLDALAGRL--AGNVVMSGKVLVNGKKRLD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TIIFSIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            297 IINGD----STAVALNR---EEDPKATEIIEPSKODKPLIEKLAEIYVNSSFYKETKAEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          265 CVNSDFDNVTAALVESRRINDSSFSLHQLHETTNTLDPL-DDIPTAEIRTTLVRKFKCSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            117 FKCNSGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIOELGLDKVADS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       177 KVGTQFIRGVSGGERKRISIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSKQGR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HQLSGGEKKKKITVF-----KEISYTTSFCHQLRWVSKRSFKNLLGNPQASIAQIIVTV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VLGLVIGAIYFGLKNDSTGIQNRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEYISGY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                580 ALQ---HNEFLGONFCPGLNATGNNPCNYATCTGEEYLVKQGIDLSPWGLWKNHVALACM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               42;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 678;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 22.0%; Score 739; DB 2; Length 67 Best Local Similarity 30.3%; Pred. No. 1.2e-44; Matches 186; Conservative 137; Mismatches 248; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IVIFLTIAYLKLL 649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |:|
|LIGYRIAFFAIL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ₹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ठ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    පු
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ઠ
                    NiAlternate names: protein F4P12.210
C.Species: Arabidopsis thaliana (mouse-ear cress)
C.Species: Ou-Feb-2000 #sequence_revision Ou-Feb-2000 #text_change Ou-Mar-2000
C.Accession: T45891
R.Bloecker, H.; Mewes, H.W.; Lemcke, K.; Mayer, K.F.X.; Quetier, F.; Salanoubat, M. Submitted to the Protein Sequence Database, January 2000
A.Reference number: Z23016
A.Accession: T45891
A.Accession: T45891
A.Accession: T45891
A.Accession: T45891
A.Faxperiments
A.Faxperiments
Constructed to the Protein BAC clumbia; BAC clone F4P12
C.Genetics: A.Faxperimental source: cultivar Columbia; BAC clone F4P12
C.Genetics: A.Map position: 3
A.Map position: 3
A.Note: F4P12.210
C.Superfamily: Arabidopsis thaliana probable ATP-binding cassette protein F12L6.1; ATP-b
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   420 STGIQNRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLL 479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   207 FSAEFRLPSSLSKKKKKRRVQALIDQLGLRNAAKTVIGDEGHRGVSGGERRRVSIGTDII 266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TDPSILFLDEPTTGLDSSTANAVLLLKKRMSKQGRTIIFSIHQPRYSIFKLFDSLTLLAS 261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              267 HDPIILFLDEPTSGLDSTSAYMVVKVLQRIAQSGSIVIMSIHQPSYRILGLLDKLIFLSR 326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GNTVYSGSPTHLPQFFSEFGHPIPENENKPEFALDLIR--------ELEDS 369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        370 PEGTKSLVE------FHKQWRAK--QTSSQSRRNINVSLKDAISASISRGKLVSGA 417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -----SYTTSFCHQLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKND 419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PMTMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGQSVVSVATL 539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LMTICFVFMMIFSGLLVNLTTIASWLSWLQYFSIPRYGFTALQHNEFLGQNFC--PGLNA 597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANF-KCNSGYVVQDDVVMGTLTVRENLQ 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GRIMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIINGDSTAVALNREEDFKATEIIEP 321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SKODKPLIEKLAEIYVNSSFYKETKAELHOLSGGEKKKKITVFKEI------367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGTQFIRGVSGGERKRTSIGMELI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           36 VLSFHNICYRVKLKSGF--LPC--RKPVE-----KEILSNINGIMKPG-LNAILGPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 22.1%; Score 741.5; DB 2; Length 739; Best Local Similarity 28.3%; Pred. No. 9.1e-45; Matches 193; Conservative 123; Mismatches 256; Indels 111;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       714
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B & B &
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
```

qq

슝 셤 ò 임 δ 임 ò

13;

85

403

463 443

622

610

10

RESULT H96552

à 셤 ઠે

ઠે 셤 8 g ò

```
C,Accession: T08934
R;Bevan, M.; Hilbert, H.; Braun, M.; Holzer, E.; Brandt, A.; Duesterhoeft, A.; Bancrof: submitted to the Protein Sequence Database, May 1999
A;Reference number: Z16519
A;Accession: T08934
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   115 ANFKCNSGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVA 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              121 KAVKRTTGFVTQDDALYPNLTVTTELLVFTALLRLPNSFKKQEKIKQAKAVMTELGLDRCK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GRIVVITIHQP-----SKGNPVYFGLGSNAMDYFASVGYSPLVERINPSDF 286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GRIIIFSIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYN-NPADF 293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      287 LIDIANGKPLLV-----ISCWPSVGSDESORPEAMKAALV----AFYKTNLLDSVINE 335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9
hypothetical protein F27G19.20 - Arabidopsis thaliana
C;Species: Arabidopsis thaliana (mouse-ear cress)
C;Date: 11-Jun-1999 #sequence_revision 11-Jun-1999 #text_change 17-Mar-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               :: : | ::: | ::: | :: | :: | 394 -IVSFLCGLLWWQTK--ISFLQDQIGLLFFISSFWAFFPLFQQIFTFPQERAMLQKERSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        58 PVEKEILSNINGIMKPG-LNAILGPTGGGKSSLLDVLAAR--KDPSGLSGDVLINGAPRP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DSKVGTQFIRGVSGGERKRTSIGMBLITDPSILFLDEPTTGLDSSTANAVLLLLKRMSKQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   294 FLDIINGDSTAVALNREEDFKATEIIEPSKODKPLIEKLAEIYVNSSFYK-----E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             345 TKAELHQLSGGEKKKKITVFKEISYTTSFCHQLRWVSKRSFKNLLGNPQA--SIAQIIVT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VVLGLVIGAIYFGLKNDSTGIQNRAGVLFFLTTNQCFSSV-SAVELFVVEKKLFIHEYIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   462 GYYRVSSYFLGKILSDILPMTMLPSIIFTCIVYFWLGLKPKADAFFVMMFTLMMVAYSAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ----ILGOYTANELYPCGDNGKLRCHVGDFEGIKHIGFNSGL------VSALALTAML
                                                                                                                                                                                                                                                                                                                                                                                                                             1 MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSG---FLPCRK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 MDNOEVSMDVETPIAKTNDDRSLPFSIFKKANNPVTLKFENLVYTVKLKDSQGCFGKNDK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               522 SMALAIAAGOSVVSVATLLMTICFVFMMIFSGLLVNLTTIASWLSWLQYFSIPRYGFTAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         582 QHNEFLGQNFCPGLNATGNN---PCNYATCTGEBYL-VKQGIDLSPWGLWKNHVALACMI
                                                                                                                                                                                                                                                                       A;Map position: 4
A;Introns: 38/3; 253/1; 304/1; 414/3
C;Superfamily: fruit fly white protein; ATP-binding cassette homology
                                                                                                                                                    A;Molecule type: DNA
A;Residues: 1-635 <BEV>
A;Cross-references: EMBL:AL078467; GSPDB:GN00062; ATSP:F27G19.20
A;Experimental source: cultivar Columbia; BAC clone F27G19
                                                                                                                                                                                                                                                                                                                                               h Similarity 30.0%; Score 721; DB 2; Length 63 Similarity 30.0%; Pred. No. 2.1e-43; Conservative 121; Mismatches 284; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |:: |||: | : |

VVYRVIAYIALTRIGK 631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VIFLTIAYLKLLFLKK 653
                                                                                                                                                                                                                                                    A;Gene: ATSP:F27G19.20
                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Simi:
Matches 203; (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          616
                                                                                                                                                                                                                                    C;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                   ABC transporter-like protein - Arabidopsis thaliana

NyAlternate names: protein T15C9.110
C;Species: Arabidopsis thaliana (mouse-ear cress)
C;Date: 20-Apr-2000 #sequence_revision 20-Apr-2000 #text_change 19-May-2000
C;Accession: T47650
R;Mewes, H.W., Rudd, S; Lemcke, K.; Mayer, K.F.X.
Submitted to the Protein Sequence Database, April 2000
A;Reference number: Z24470
A;Reference number: Z24470
A;Reference number: Z24470
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-708 <MEW.>
A;Residues: 1-708 <MEW.>
A;Residues: 1-708 <MEW.>
A;Residues: amBL:Aal32970
A;Experimental source: cultivar Columbia; BAC clone T15C9
C;Genetics:
C;Genetics:
A;Map position: 3
A;Note: T15C9:110
C;Superfamily: Arabidopsis thaliana probable ATP-binding cassette protein F12L6:1; ATP-b
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KPLIEKLAEIYVNSSFYKETKAELHQLSGGEKKKKITVFKEISYTTSFCHQLRWVSKRSF 385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RVSLKEAIAASV-----SRGKL--VSGSSGANPISMETVSSYANPPLAETFILAKRYI 412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLLPMTMLPSIIFTCIVYFMLGLKPKADA 505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            --PGLNATG 599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LAARKDPSGLSGDVLINGAP--RPANFKCNSGYVVQDDVVMGTLTVRENLQFSAALRLAT 150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EPTTGLDSSTANAVLLLLKRMSKQGRTIIFSIHQPRYSIFKLFDSLTLLASGRLMFHGPA 270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   271 QBALGYFESAGYHCEAYNNPADFFLDII-----NGDSTAVALNREEDFKATEIIEPSKQD 325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FFVMMFTLMMVAYSASSMALAJAAGQSVVSVATLLMTICFV-FMMIFSGLLVNLTTIASW 564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NNPCNYATC -- TGEEYLVKQGI-DLSPWG-LWKNHVALACMIVIFLTIAYLKLLFLKK 653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTKITESTCLRTGPDLLMQQGITQLSKWDCLW---ITLAWGL-FFRILFYLSLLFGSK 704
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  242 EPISGIDSTNAFWVQVIKRIAQSGSVVIMSIHQPSARIIGLIDRLIILSHGKSVFNGSP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                302 VSLPSFFSFGRPIPEKENITEFALDVIRELEGSSEGTRDLVBFNEKWQQNQTARATTQS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           36 VLSFHNICYRVKLKSGFLPCRKPVE--KEILSNINGIMKPG-LNAILGPTGGGKSSLLDV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TMTNHEKNERINRVIQELGLDKVADSKVGTQFIRGVSGGERKRTSIGMELITDPSILPLD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDSTGIQNRAGVLFFLTTNQCFSSVSAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    55;
                                                                                                                                                                                                                                                                                                                                                                                                                             Length 708;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 21.7%; Score 726.5; DB 2; Best Local Similarity 30.1%; Pred. No. 1e-43; Matches 198; Conservative 123; Mismatches 282;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LSWLQYPSIPRYGFTALOHNEFLGQNFC-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            651
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         \dot{\mathcal{S}}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ઠ
```

RESULT G84791

```
probable ATP-binding cassette protein T16B24.1 - Arabidopsis thallana probable ATP-binding cassette protein T16B24.1 - Arabidopsis thallana probable ATP-binding cassette protein T2B67.

Cipaceise: Arabidopsis thallana (mouse-ear cress)

Cipacesion: Arabidopsis thallana (mouse-ear cress)

Cipacesion: Arabidopsis thallana (mouse-ear cress)

Riboursley, S.D.; Kaul, S.; Lin, X.; Ketchum, X.A.; Crosby, M.L.; Brandon, R.C.; Sykes, submitted to the EMBL Data Library, August 1998

A; Regernor number: 121679

A; Residues: 1-740 ROUP

A; Residues: 1-740 ROUP

A; Residues: 1-740 ROUP

A; Residues: 1-740 ROUP

A; Residues: 1-740 ROUP

A; Residues: 1-740 ROUP

A; Residues: 1-740 ROUP

A; Residues: 1-740 ROUP

A; Residues: 1-740 ROUP

A; Residues: 1-740 ROUP

A; Residues: 1-740 ROUP

A; Residues: 1-740 ROUP

A; Residues: 1-740 ROUP

A; Residues: 1-740 ROUP

A; Rescription: Arabidopsis Library, July 1998

B; Ribin X; Rand B; Roupel DM

A; Rescription: Arabidopsis Library, July 1998

A; Rousely, S.D.; Lin, X; Rechum, K.A.; Shen, M. I.; Town, C.D.; Fuji, C.Y.; A; Rousely R; Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel Roupel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Map position: 2
(Supprist) Arabidopsis thaliana probable ATP-binding cassette protein F12L6.1; ATP-
C;Keywords: ATP
F;110-310/Domain: ATP-binding cassette homology <ABC>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TRGLIEFUK----KWQEMKKQSURQPPLTPP-SSPYPNLTLKEAIAASISRGKLVSGGES 410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Cross-references: GB:AE002093; NID:g3402672; PIDN:AAC28975.1; GSPDB:GN00139
C;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGERKRISIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSKQGRTIIFSIHQPRY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  248 SIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDII-----NG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DSTAVALNREEDFKATEIIEPSKODKPLIEKLAEIYVNSSFYKETKAELHQ----LSGGBK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -----KPVEKEILSNING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    70 IMKPG-LNAILGPIGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPAN-FKCNSGYVVQD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DVVMGTLTVRENLQFSAALRLATTWTNHEKNERINRVIQELGLDKVADSKVGTQFIRGVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     83;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            740;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 21.4%; Score 717.5; DB 1; Best Local Similarity 28.0%; Pred. No. 4.7e-43; Matches 193; Conservative 120; Mismatches 294;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 26 NDLKAFTEGAVLSFHNICYRVKLK----SGFLPCR---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      C;Genetics:
A;Gene: At2g39350; T16B24.1; F12L6.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        심
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     \delta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ð
probable ABC transporter [imported] - Arabidopsis thaliana
C;Species: Arabidopsis thaliana (mouse-ear cress)
C;Species: Arabidopsis thaliana (mouse-ear cress)
C;Accesion: G84791
C;Accesion: G84791
R;Lin, X.; Kaul, S.; Rounsley, S.D.; Shea, T.P.; Benito, M.I.; Town, C.D.; Fujii, C.Y.;
M.; Koo, H.; Moffat, K.S.; Cronin, L.A.; Shen, M.; VanAken, S.B.; Umayam, L.; Tallon, L.
euss, D.; Nierman, W.C.; White, O.; Eisen, J.A.; Salzberg, S.L.; Fraser, C.M.; Venter, J.
Nature 402, 761-768, 1999
A;Title: Sequence and analysis of chromosome 2 of the plant Arabidopsis thaliana.
A;Reference number: A84420; MUID:20083487; PMID:10617197
A;Accession: G84791
A;Scatus: preliminary
A;Accession: G84791
A;Scatus: preliminary
A;Accession: G84791
A;Residues: 1-755 csTO
C;Genteics:
C;Genteics:
A;Gene: AL237360
A;Map position: 2
C;Superfamily: Arabidopsis thaliana probable AIP-binding cassette protein F12L6.1; AIP-B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              391 NPQASIAQIIVTVVLGLVIGAIYFGLKNDSTGIQNRAGVLFFLTTNQCFSSVSAVELFVV 450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EXXLFIHEYISGYYRVSSYFLGXLLSDLLPMTMLPSIIFTCIVYFMLGLXPKADAFFVMM 510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           111 APRPANF-KCNSGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELG 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SVLESSMOKVISAYVMQDDLLFPMLTVEETLMFSAEFRLPRSLSKKKKKARVQALIDQLG 241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RMSKQGRIIFSIHQPRYSIFKLFDSLTLLASGRIMFHGPAQEALGYFESAGYHCEAVNN 289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   290 PADFFLDIINGDSTAVALNREEDFKATEIIEPSKQDKPLIE-----KLAEIYVN---- 338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        362 KTEFALDLI------RELEYS-----TEGTKPLVEFHKQWRAKQAPSYNNNKR 404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ----SSFYKETKAELHQ---LSGGEKKKKITVFKEI-SYTTSFCHQLRWVSKRSFKNLLG 390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           405 NTNVSSLKEAITASISRGKLVSGATNNNSSNLTPSFQTFANPFWIEMIVIGKRAILNSRR 464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PVE-----KEILSNINGIMKPG-LNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLING 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LDKVADSKVGTQFIRGVSGGERKRTSIGMELITDPSILFLDEPTTGLDSSTANAVLLLLK 229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 465 QPELLGMRIGAVMVTGIILATMFTNLDNSPKGAQERLGFFAFAMSTTFYTCARAIPVFLQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILMMVAYSASSMALAIAAGOSVVSVATLIMTICFVFMMIFSGLLVNLTTIASWLSWLQY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      644 ISLVKYPYEGVLONER--ONPTRCPARGVOLFDNSPLGEFPNDVKVNLLKSMSGVLGTNV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2 SSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGA-VLSFHNICYRVKLKSGFLP---CRK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 :|:|
--ITVAWGFFFRVLF 742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           604 NYATC--TGEEYLVKQGI-DLSPWG-LWKNHVALACMIVIFLTIA---YLKLLF 650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 755;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match

21.5%; Score 720.5; DB 2; Length
Best Local Similarity 28.3%; Pred. No. 2.9e-43;
Matches 202; Conservative 131; Mismatches 282; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FSIPRYGFTALQHNEFLGQN----FCPGLNATGNNP-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TABTCVTTGIDILKQQGITDISKWNCLW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   230
```

8 8 8

음 상 음

셤 ઠે g ⋧ g δ g ò qq ⋧ ద δ <u>6</u> Š

d

ò

423

us-09-961-086-1.rpr

```
483 ALGAAIMDAKKASTIVTVTWIMLAFVLIGGYYVN--KVDSGMVWMKYVSTTFYCYRLLVAIQ 540
                                                                                                                                                                                                                                                                                                                                                                                                                   583 HNEFLGONFCP--GLNATGNNPCNYATCTGEEYLVKOGIDLSPWGLWKNHVALACMIVIF 640
                                                                                                                                                                                                                                                                   AIAAGQSVVSVATLLMTICFVFMMIFSGLLVNLTTIASWLSWLQYFSIPRYGF---TALQ 582
                                                                                                                                                   407 LVIGAIYFGLKNDSTGIQNRAGVLFFLTIN-QCFSSVSAVELFVVEKKLFIHEYISGYYR 465
                                                                                                                                                                                                                                         VSSYFLGKLISDILPMIMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMAL 525
                                                                                                                                                                                                                                                                                                                                                                                                                                             320 ---RVNGGGITTCIA-----TWFSQLCILLHRLLKERRHESF-----DLLRIFQVVAAS
                                                                                                                                                                               263 LLDLANGVCQTDGVTEREKPNVRQTLVTAYDTLLAPQVKTCIEVSHFPQDNARFVKT---
                                                               ELHQLSGGEKKKKITVFKEISYTTSFCHQL-RWVSKRSFKNLLGNPQASIAQIIVTVVLG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   completed: March 23, 2004, 18:31:36
He: 23 secs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          641 LTIAYLKLLFLK 652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RVLAYLALRRIK 608
                                                                                                                                                                                                                                                                                   424
                                                                                                                                                                                                                                                                                                                               526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                541
                                                                                                                                                                                                                                           466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            time
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Search
Job time
                                                                 ઠે
                                                                                                    g
                                                                                                                                            ઠે
                                                                                                                                                                                      g
                                                                                                                                                                                                                                         ð
                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                             ઠે
                                                                                                                                                                                                                                                                                                                                                                       日
                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            C, Accession: B96742

R, Theologis, A.; Ecker, J.R.; Palm, C.J.; Federspiel, N.A.; Kaul, S.; White, O.; Alonso, Chin, C.W.; Chung, M.K.; Conn, L.; Conway, A.B.; Conway, A.R.; Creasy, T.H.; Dewar, K., Mature, C.W.; Chung, M.K.; Conn, L.; Conway, A.B.; Conway, A.R.; Creasy, T.H.; Dewar, K., Mature, G.B.; Huizar, L.

Nature 408, 816-820, 2000

A,Authors: Hunter, J.L.; Jenkins, J.; Johnson-Hopson, C.; Khan, S.; Khaykin, E.; Kim, C.C.
(A.; Li, J.H., Li, Y.; Liu, X.; Liu, Z.A.; Luros, J.S.; Maiti, R.; Marziali, Rizzo, M.; Rooney, T.; Rowley, D.; Sakano, H.

A,Authors: Salzberg, S.L.; Schwartz, J.R.; Shinn, P.; Southwick, A.M.; Sun, H.; Tallon, A,Authors: Salzberg, S.L.; Schwartz, J.C.; Davis, R.W.

A,Title: Sequence and analysis of chromosome 1 of the plant Arabidopsis.

A,Accession: B96742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            262
                                                                                        471
                                                                                                                                                                                                                                                                591
                                                                                                                                                                                                                                                                                            CPURGVQIFDNTPLGELPEVMKLKLLGTVSKSLGVTISSTTCLTTGSDILRQQGVVQLSK 709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DSKVGTOFIRGVSGGERKRISIGMELITDPSILFLDEPITGLDSSTANAVLLLLKRMSK- 233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        294 FLDIING--DSTAVALNREEDFKATEIIEPSKQDKPLIEKLAEI----YVNSSFYKETKA 347
                                          411 VAHGGATTNTTTLAVPAFANPMVIBIKTLSKRSMLNSRRQPELFGIRJASVVITGFILAT 470
                                                                                                                                                                                                                    531 SHAIVS-FPSLIFLSVAFAATTYWAVGLDGGLTGLLFYCLIILASFWSGSSFVTFLSGVV 589
                                                                                                                                                                                                                                                                                                                                                       56 RKPVEKEILSNINGIMKPG-LNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRP 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            115 ANFKCNSGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVA 174
-----KKKITVFKEISYTTSFCHQLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGA 411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A;Residues: 1-609 <STO>
A;Cross-references: GB:AE005173; NID:g6978921; PIDN:AAF34313.1; GSPDB:GN00141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              probable ABC transporter F17M19.11 [imported] - Arabidopsis thaliana
C;Species: Arabidopsis thaliana (mouse-ear cress)
C;Date: 02-Mar-2001 #sequence_revision 02-Mar-2001 #text_change 23-Mar-2001
                                                                                                                                                                            GKLLSDLLPMTMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                :|:|::||||| :|:||||| KGKTVVTSIHQPSSRVFQMFDTVLLLSEGKCLFVGKGRDAMAYFESVGFSPAFPMNPADF
                                                                                                                                                                                                                                                              SVVSVATILIMTICFVFMMIFSGLLVNLTTIASWLSWLQYFSIPRYGFTALQHNEFLGQNF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QGRTIIFSIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADF
                                                                                                                412 IYFGLKNDSTGIQNRAGVLFFLTTNQCFSSVSAVBLFVVEKKLFIHEYISGYYRVSSYFL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A;Map position: 1
C;Superfamily: fruit fly white protein; ATP-binding cassette homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              41;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indela
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
21.3%; Score 712.5; DB 2;
Best Local Similarity 31.0%; Pred. No. 8e-43;
Matches 190; Conservative 125; Mismatches 256;
                                                                                                                                                                                                                                                                                                                                                                                                                                        624 WGLWKNHVALACMIVIFLTIA---YLKLLF 650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Status: preliminary A;Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; Gene: F17M19.11
                                                                                                                                                                                                                                                                                                                                                                                                 650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                          ద
                                                                                      ઠે
                                                                                                                         셤
                                                                                                                                                                          \delta
                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                 ద
                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
```

```
March 23, 2004, 18:31:13; Search time 55 Seconds (without alignments).
3083.923 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                              US-09-961-086-1
3352
1 MSSSNVEVPIPVSQGNTNGF.......MIVIFLTIAYLKLLFLKKYS 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            "Ggn2 6/prodata/1/pubpaa/USOB_FUBCOMB.pep:"

"Ggn2 6/prodata/1/pubpaa/USOB_FUBCOMB.pep:"

"Ggn2 6/prodata/1/pubpaa/USO9C_PUBCOMB.pep:"

"Ggn2 6/prodata/1/pubpaa/USOB_FUBCOMB.pep:"

"Ggn2 6/prodata/1/pubpaa/USIOC_PUBCOMB.pep:"

"Ggn2 6/prodata/1/pubpaa/USIOC_PUBCOMB.pep:"

"Ggn2 6/prodata/1/pubpaa/USIOC_PUBCOMB.pep:"

"Ggn2 6/prodata/1/pubpaa/USIOC_NEW_PUB.pep:"

"Ggn2 6/prodata/1/pubpaa/USIOC_NEW_PUB.pep:"

"Ggn2 6/prodata/1/pubpaa/USIO_NEW_PUB.pep:"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Published Applications AA:*

1: /cgn2_6/ptodata/1/pubpaa/US07_PUBCOMB.pep:*

2: /cgn2_6/ptodata/1/pubpaa/PCT_NEW_PUB.pep:*

3: /cgn2_6/ptodata/1/pubpaa/US06_RUB .pep:*

4: /cgn2_6/ptodata/1/pubpaa/US07_NEW_PUB.pep:*

5: /cgn2_6/ptodata/1/pubpaa/US07_NEW_PUB.pep:*

6: /cgn2_6/ptodata/1/pubpaa/US08_NEW_PUB.pep:*

7: /cgn2_6/ptodata/1/pubpaa/US08_NEW_PUB.pep:*

8: /cgn2_6/ptodata/1/pubpaa/US08_NEW_PUB.pep:*

9: /cgn2_6/ptodata/1/pubpaa/US08_NEW_PUB.pep:*

9: /cgn2_6/ptodata/1/pubpaa/US08_NEW_PUB.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1049977
GenCore version 5.1.6
Copyright (c) 1993 - 2004 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1049977 segs, 258955339 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                  OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Minimum DB seq length: 0 Maximum DB seq length: 20000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Scoring table:
                                                                                                                                                                                                                                                                                                                                                                     Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                    Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Database
                                                                                                                                                                                                  Run on:
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

	Description	Seguence 1, Appli	Sequence 13, Appl	-	Sequence 61, Appl	Sequence 2, Appli	Sequence 27, Appl	Sequence 10, Appl	Sequence 5, Appli	Ľ	Sequence 14, Appl	Sequence 1520, Ap	Sequence 245, App	Sequence 242078,	Sequence 63125, A	Sequence 3799, Ap
SOLUTION	QI	US-09-961-086-1	US-10-405-806-13	US-09-981-353-35	US-10-120-687-61	US-10-405-806-2	US-09-866-866A-27	US-09-866-866A-10	US-10-090-455-5	US-09-745-763-197	US-09-866-866A-14	US-10-369-493-1520	US-10-108-605-245	US-10-424-599-242078	US-10-425-114-63125	US-10-369-493-3799
	DB	101	15	σ	14	15	0	6	14	σ	σ	15	13	12	12	15
	Query Match Length DB	655	655	655	655	. 655	655	655	655	604	657	1049	663	1084	1101	9/9
o#	Query Match	100.0	100.0	99.8	99.8	99.8	9.66	99.4	99.4	91.1	82.2	24.9	24.2	24.0	24.0	23.7
	Score	3352	3352	3346	3346	3346	3338	3331	3331	3053.5	2757	835.5	812	802	805	795.5
	Result No.		7	ო	4	Ŋ	9	7	60	σv	10	11	12	13	14	15

-	3	H	4,	Sequence 10, Appl	ř	σ	N	ထ	Sequence 4, Appli	Seguence 175941,	Sequence 8, Appli	Sequence 53846, A	Sequence 64380, A	Sequence 1, Appli	Sequence 2, Appli	Sequence 2, Appli	Sequence 14, Appl	Sequence 3, Appli	a)	Sequence 6, Appli	Sequence 5740, Ap	57	20	4,	15	æ	7, App	53	6184,	
424-599-176	425-114-5442	090-455-1	090-455-	-160-1	072-621	072-621-	090-455	090-455	154	424	154-452	425-114-5384	US-10-425-114-64380	US-09-837-992-1	US-09-989-981A-2	-	US-10-210-130-14	US-09-837-992-3	US-09-989-981A-6	US-10-090-455-6	-574	-574	1	US-09-989-981A-4	US-10-424-599-154459	US-09-989-981A-8	US-10-090-455-7	ď	15 US-10-369-493-6184	
12	12	14	14	16	13	13	14	14	13	12	13	12	12	σ	10	14	15	σ	10	14	15	15	15	10	12	10	14	15	15	
695	819	646	674	674	638	646	646	627	646	725	646	929	673	652	652	646	599	651	651	651	559	609	1095	672	623	673	673	658	639	
23.1				21.2									20.9		20.7		20.4	20.4	20.4	20.4	20.2	19.8	19.6	19.6	19.2	19.1	19.1	19.1	19.0	
773.5	746.5	711	710.5	710.5	710	710	710	708	108	707	700	669	669	693.5	693.5	693	683.5	682.5	682.5	682.5	677	664	658.5	657.5	644	640.5	639.5	639	636.5	
16	17	18	13	20	21	22	23	24	25	56	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	

ALIGNMENTS

```
APPLICANT: UNIVERSITY OF MARYLAND, BALTIMORE
APPLICANT: UNIVERSITY OF MARYLAND, BALTIMORE
APPLICANT: ROSS, Douglas D.
APPLICANT: BOYLE, L. Austin
APPLICANT: DOYLE, L. Austin
APPLICANT: ARRUZZO, Lynne
TITLE OF INVENTION: WHICH ENCODES IT
FILE REFERENCE: EP19376-019
TITLE OF INVENTION: WHICH ENCODES IT
FILE REFERENCE: EP19376-019
CURRENT APPLICATION NUMBER: US 60/073,763
PRIOR APPLICATION NUMBER: US 60/073,763
PRIOR FILING DATE: 1998-02-05
PRIOR FILING DATE: 1998-02-05
NUMBER OF SEQ ID NOS: 7
SOFTWARE: Patentin Ver: 2.1
SEQ ID NOS: 7
SEQ ID NOS: 7
SEQ ID NOS: 7
SEQ ID NOS: 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KEILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61 KEILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      o,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 100.0%; Score 3352; DB 10; Length 655; Best Local Similarity 100.0%; Pred. No. 7e-300; Matches 655; Conservative 0; Mismatches 0; Indels 0;
                    Sequence 1, Application US/09961086; Publication No. US20030036645A1; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              , ORGANISM: Homo sapiens
US-09-961-086-1
US-09-961-086-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      q
```

ö

d

ò

요

ò

셤

8

Dp

8

8

임 ò g 셤

ò 엄

ò

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     120
                                                                                                                                                                                                                                                                                                                360
                                                                                                                                                                                                                                                                                                                                                                                                                                        420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KEILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN 120
                                                              180
                                                                                                                                                240
                                                                                                                                                                                      240
                                                                                                                                                                                                                                                                                                                                      420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KEILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGI ONRAGVLFFLTTNOCFSSVSAVELFVVEKKLFIHEY ISGYYRVSSYFLGKLLSDLLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MIMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMWVAYSASSMALAIAAGQSVVSVATLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MTICEVFMMIFSGLLVNLTTIASWLSWLQYFSIPRYGFTALQHNEFLGQNFCPGLNATGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      541 MTICFVFMMIFSGLLVNLTTIASWLSWLQYFSIPRYGFTALQHNEFLGQNFCPGLNATGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 MSSSNVEVPIPVSQGNTNGFPATASNDLKAFTBGAVLSFHNICYRVKLKSGFLPCRKPVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGIQNRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDELP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE
                                                                                               121 SGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGT
                                                                                                                                                                           181 OFIRGVSGGERKRTSIGMELITDPSILFLDEPTTGLDSSTANAVLLLIKRMSKQGRTIIF
                                                                                                                                                                                                                                241 SIHOPRYSIFKLFDSLTLLASGRIMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING
                                                                                                                                                                                                                                                        SIHQPRYSIFKLFDSLTLLASGRIMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING
                                                                                                                                                                                                                                                                                                                DSTAVALNREEDFKATELLEPSKODKPLLEKLAELYVNSSFYKETKAELHOLSGGEKKKK
KEILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN
                                                              SGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGT
                                                                                                                                                QFIRGVSGGERKRTSIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSKQGRTIIF
                                                                                                                                                                                                                                                                                                                                                                                              ITVPKEISYTTSFCHQLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDS
                                                                                                                                                                                                                                                                                                                                                                                                                                    ITVFKEISYTTSFCHQLRWVSKRSFKNLIGNPQASIAQIIVTVVLGLVIGAIYFGLKNDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     601 NPCNYATCTGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKLLFLKKYS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NPCNYATCTGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKLLFLKKYS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; NAME/KEY: misc feature
; OTHER INFORMATION: Incyte ID No. US20020160382A1 5517972CD1
US-09-981-353-35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 35, Application US/09981353;
Patent No. US20020160382A1;
GENBEAL INFORMATION:
APPLICANT: Lasek, Amy W.
TITLE OF INVENTION: GENES EXPRESSED IN COLON CANCER;
FILE REFERENCE: PA-003B to 1005;
CURRENT APPLICATION NUMBER: US/09/981,353;
CURRENT FILING DATE: 2001-10-11
NUMBER OF SEQ ID NOS: 194;
SOFTWARE: PERL Program
SEQ ID NO 35;
LENGTH: 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
99.8%; Score 3346; DB 9;
Best Local Similarity 99.8%; Pred. No. 2.5e-299;
Matches 654; Conservative 0; Mismatches 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 3
US-09-981-353-35
                        61
                                                                                                                                                181
                                                                                                                                                                                                                                                                      241
                                                                                                                                                                                                                                                                                                                                                      301
                                                                                                                                                                                                                                                                                                                                                                                                                                        361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61
                                                              121
                                                                                                                                                                                                                                                                                                                301
                                                                                                                                                                                                                                                                                                                                                                                                361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ωp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ð
                                                                                                                                à a
                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                           dd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                   ò
                                                                                             a
                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                           유
                                                                                                                                                                                                                                                                                                                                                                                                                                                              480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              900
                                                                                                                                                                    SIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING 300
                                                                                                                                                                                            241 SIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING 300
                                                                                                                                                                                                                                                  DSTAVALNREEDFKATEIIEPSKQDKPLIEKLAEIYVNSSFYKETKAELHOLSGGEKKKK 360
                                                                                                                                                                                                                                                                                                                                      420
                                                                                                                                                                                                                                                                                                                                                                            420
                                                                                                                                                                                                                                                                                                                                                                                                                    480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KEILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9
                                                                                                          181 QFIRGVSGGERKATSIGMELITDPSILFLDEPTTGLDSSTANAVLLLKRMSKQGRTIIF
                                                                                                                                                                                                                                                                                   301 DSTAVALNREEDFKATEIIEPSKODKPLIEKLABIYVNSSFYKETKAELHQLSGGEKKKK
                                                                                                                                                                                                                                                                                                                                                            ITVPKEISYTTSFCHOLRWVSKRSFKNLLGNPOASIAOIIVTVVLGLVIGAIYFGLKNDS
                                                                                                                                                                                                                                                                                                                                                                                                                                             421 TGIONRAGVLFFLTTNOCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 MSSSNVEVFIPVSQCNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE
    SGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGT
                               121 SGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGT
                                                                                    OFIRGVSGGERKRISIGMELITDPSILFLDEPITGLDSSTANAVLLLLKRMSKQGRIIIF
                                                                                                                                                                                                                                                                                                                                  ITVFKEISYTTSFCHQLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDS
                                                                                                                                                                                                                                                                                                                                                                                                                    TGIQNRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MIMLPSIIFICIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGQSVVSVATLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MTICFVFMMI PSGLLVNLTTIASWLSWLQYFSI PRYGFTALQHNEFLGQNFCPGLNATGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   541 MTICEVEMMIFSGLLVNLTTIASWLSWLQYFSIPRYGFTALQHNEFLGQNFCPGLNATGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NPCNYATCTGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKLLFLKKYS 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100.0%; Score 3352; DB 15; Length 655; llarity 100.0%; Pred. No. 7e-300; Conservative 0; Mismatches 0; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 USE THEREOF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 13, Application US/10405806
Publication No. US2003023362A1
GENERAL INFORMATION:
APPLICANT: KOWATANI, HIDEYA
APPLICANT: KOWATANI, HIDEYA
APPLICANT: KOMANI, HIDEHITO
APPLICANT: KOMANI, HIDEHITO
APPLICANT: MAKAGAWA, KINAKO
ITILE OF INVENTION DEUG RESISTANT GENE AND USE
FILE REFERENCE: 234985USGCONT:
CURRENT APPLICATION NUMBER: US/10/405,806
CURRENT FILING DATE: 2003-04-03
PRIOR PILING DATE: 2001-09-18
PRIOR APPLICATION NUMBER: JE2000-303441
PRIOR FILING DATE: 2000-10-03
NUMBER OF SEQ ID NOS: 17
SOFTWARE: PARCENTIN VERSION 3.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ; OTHER INFORMATION: ABCG2 482Tmutant sequence US-10-405-806-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TYPE: PRT
ORGANISM: Artificial Sequence
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
Matches 655; Conservat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 2
US-10-405-806-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQ ID NO 13
LENGTH: 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         601
                                                                                                                                                                                                                                                                                                                                  361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         541
                                                                                    181
                                                                                                                                                                                                                                                  301
                                                                                                                                                                                                                                                                                                                                                                          361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    481
                                                                                                                                                                  241
                                                                                                                                                                                                                                                                                                                                                                                                                  421
```

8 g ò 180 180 300 300

The second

```
240
                                                                                                                                                                                           240
                                                                                                                                                                                                                                                                                                                                               360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             900
                                                             KEILSNINGIMKPGLINAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN
                                                                                                                                                                                                                                                                                                      241 SIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING
                                                                                                                                                                                                                                                                                                                                                                                                                                                    ITVFKEISYTTSFCHQLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE
                                                                                                                                         QFIRGVSGGERKRISIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSKQGRTIIF
                                                                                                                                                                                                                   SIHOPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING
                                                                                                                                                                                                                                                                                                                                               DSTAVALNREEDPKATELLEPSKODKPLIEKLAELYVNSSFYKETKAELHQLSGGEKKKK
                                                                                                                                                                                                                                                                                                                                                                          DSTAVALNREEDFKATEIIEPSKQDKPLIEKLAEIYVNSSFYKETKAELHQLSGGEKKKK
                                                                                                                                                                                                                                                                                                                                                                                                                           ITVPKEISYTTSFCHQLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGIQNRAGVLFFLTTNQCFSSVGAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MIMLPSIIFTCIVYFWLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGQSVVSVATLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      481 MRWLPSIIFTCIVYFWLGLKPKADAFFVWMFTLMMVAYSASSMALAIAAGQSVVSVATLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           541 MIICEVENMIESGLLVNLTIASWLSWLQYFSIPRYGFTALQHNEFLGQNFCPGLNATGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE
                                                                                                                 SGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NPCNYATCTGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKCLFLKKYS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       601 NPCNYATCTGEEYLVKQGIDLSEWGLWKNHVALACMIVIFLTIAYLKLIFLKKYS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 655;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-1U-405-806-2

Sequence 2, Application US/10405806

Publication No. US2003023362A1

GENERAL INFORMATION:

APPLICANT: KOMPANI, HIDEYA

APPLICANT: KOTANI, HIDEYA

APPLICANT: KOTANI, HIDEHTO

APPLICANT: KOTANI, HIDEHTO

APPLICANT: MAKGAWA, RINAKO

TITLE OF INVENTION: DRUG RESISTANT GENE AND USE THEREOF

FILLE REFERENCE: 234,985USGOONT

CURRENT APPLICATION NUMBER: US/10/405,806

CURRENT PILING DATE: 2003-04-03

PRIOR FILLING DATE: 2001-09-18

PRIOR FILLING DATE: 2001-09-18

PRIOR PLILING DATE: 2000-10-03

NUMBER OF SEQ ID NOS: 17

SOFTWARE: PALENTIN VERSION 3.2

SEQ ID NO SEC ID NOS: 17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 99.8%; Score 3346; DB 15; Best Local Similarity 99.8%; Pred. No. 2.5e-299; Matches 654; Conservative 0; Mismatches 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; TYPE: PRT
; ORGANISM: Homo sapiens
US-10-405-806-2
                                         61
                                                                                                                 121
                                                                                                                                                                                             181
                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                       241
                                                                                                                                                                                                                                                                                                                                                 301
                                                                                                                                                                                                                                                                                                                                                                                      301
                                                                                                                                                                                                                                                                                                                                                                                                                             361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .
පු
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ð
                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                            ద
                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                            ठ
                                                                     셤
                                                                                                    8
                                                                                                                                             a
                                                                                                                                                                                           ઠે
                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 61, Application US/10120687

Sequence 61, Application US/10120687

Publication No. US20033082155A1

GENERAL INFORMATION:

APPLICANT: Massachusetts General Hospital

TITLE OF INVENTION: Seem Cells of the Islets of Langerhans and Their Use in Treating

TITLE OF INVENTION: Mellitus

TITLE OF INVENTION: Mellitus

FILE REFERENCE: 3284/12358

CURRENT FILING DATE: 2002-04-11

PRIOR PLILIGATION NUMBER: US 60/169082

PRIOR PAPLICATION NUMBER: US 60/23880

PRIOR PLILING DATE: 2000-09-25

PRIOR PLILING DATE: 2000-09-25

PRIOR PLILING DATE: 2000-00-6

PRIOR FILING DATE: 2000-10-06

PRIOR PLILING DATE: 2000-10-06

PRIOR PLILING DATE: 2000-10-06

PRIOR PLILING DATE: 2000-10-06

PRIOR PLILING DATE: 2000-12-06

NUMBER OF SEQ. ID NOS: 61

SOFTWARE: PATENTIN VERSION 3.1

SOFTWARE: PATENTIN VERSION 3.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      900
                                                                                                                                                                                                                                                                                                                                                                                                             480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       540
                                                                                                                                                                                                                 300
                                                                                                                                                                                                                                                        360
                                                                                                                                                                                                                                                                                                                                  420
                                                                                                                                                                                                                                                                                                                                                                     420
                                                                                                                                                                                                                                                                                                                                                                                                                                                  480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE
                                               121 SGYVVQDDVVMGTLTVRENLQFSAALRLATTWTNHEKNERINRVIQELGLDKVADSKVGT
                                                                                                                                 181 QFIRGVSGGERKRTSIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSKQGRTIIF
                                                                                                                                                                                                   241 SIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING
                                                                                                                                                                                                                                                                             DSTAVALINREEDFKATELIEPSKQDKPLIEKLARIYVNSSFYKETKAELHQLSGGEKKKK
                                                                                                                                                                                                                                                                                                                                                       361 ITVFKEISYTTSFCHQLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDS
                                                                                                                                                                                                                                                                                                                                                                                                                                 421 TGIQNRAGVLFFILTTNQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MRMLPSIIFTCIVYFMLGLKPXADAFFVMMFTLMMVAYSASSMALAIAAGQSVVSVATLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MICFVFMMIFSGLLVNLTITASWLSWLQYFSIPRYGFTALQHNFFLGQNFCPGLNATGN
                                                                                                QFIRGVSGGERKRISIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSKQGRTIIF
                                                                                                                                                                            SIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING
                                                                                                                                                                                                                                                      DSTAVALNREEDFKATELLEPSKQDKPLIEKLAELYVNSSFYKETKAELHQLSGGEKKKK
                                                                                                                                                                                                                                                                                                                                  ITVFKEISYTTSFCHQLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDS
                                                                                                                                                                                                                                                                                                                                                                                                             TGIONRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MIMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGOSVVSVATLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MTICFVFMMIFSGLLVMLTTIASWLSWLQYFSIPRYGFTALQHNEFLGQNFCPGLNATGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NPCNYATCTGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKLLFLKKYS 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 99.8%; Score 3346; DB 14;
Best Local Similarity 99.8%; Pred. No. 2.5e-299;
Matches 654; Conservative 0; Mismatches 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ) ORGANISM: Homo sapiens
US-10-120-687-61
                                                                                                                                                                                                                                                                                                                                  361
                                                                                                                                                                            241
                                                                                                  181
                                                                                                                                                                                                                                                      301
                                                                                                                                                                                                                                                                                           301
                                                                                                                                                                                                                                                                                                                                                                                                             421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  601
                        121
                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ଚ
                                                                                                                             g
                                                                                                                                                                          ઠે
                                                                                                                                                                                                           a
                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                        \dot{\delta}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                ò
                                                                                                                                                                                                                                                    ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ठे
```

420 420 480

360

540 540 909

ö

Barry Comme

```
360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        600
                                                                                                                                                                                                                                                                                                             240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            600
                                                                                                                                                     120
                                                                                                                                                                                                                                                           180
                                                                                                                                                                                                                                                                                                                                                                                                                300
                                                                                                                                                                                                                                                                                                                                                                                                                                                          241 SIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFBSAGYHCBAYNNPADFFLDIING 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            420
  9
                                                    9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  301 DSTAVALNREEDFKATEIIEPSKQDKPLIEKLAEIYVNSSFYKETKAELHQLSGGEKKKK
                                                                                                                                                                                                                                     121 SGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MTICEVEMMI FSGLLVNLTTIASWLQYFSI PRYGFTALQHNEFLGQNFCPGLNATGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 541 MTICEVEMMIFSGLLVNLTTIASWLSWLQYFSIPRYGFTALQHNEFLGQNFCFGLNATGN
                                                                                                                                             61 KEILSNINGIMKPGLNAILGPIGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN
                                                                                                                                                                                                                                                                                                             181 QFIRGVSGGERKRTSIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSKQGRTIIF
                                                                                                                                                                                                                                                                                                                                         181 QFIRGVSGGERKRISIGMELITDPSILFLDEPTTGLDSSTANAVLLLKRMSKQGRIIF
                                                                                                                                                                                                                                                                                                                                                                                                                241 SIHOPRYSIFKLFDSLTLLASGRIMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DSTAVALNREEDFKATEIIEPSKODKPLIEKLAEIYVNSSFYKETKAELHQLSGGEKKKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ITVFKEISYTTSFCHOLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ITVPKEISYTTSFCHOLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGIQNRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGIQNRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLLP
1 MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE
                                         1 MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE
                                                                                                         KEILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN
                                                                                                                                                                                                         SGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MIMLPSIIFICIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGQSVVSVATLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NPCNYATCTGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKLLFLKKYS 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOHNSHILL INFORMATION:

JAPPLICANT: SCRWetz, John

JAPPLICANT: Schwetz, John

JITLE OF INVENTION: A Method of Identifying and/or Isolating Stem Cell.

JITLE PERERRICE: 1340-1-02/LCTP2

CURRENT APPLICATION NUMBER: US 09/866,866A

CURRENT FILING DATE: 2001-08-30

PRIOR PILING DATE: 1090-06-31

PRIOR FILING DATE: 1999-06-28

NUMBER: OF SEQ ID NOS: 27

SOFTWARE: PETHING DATE: 1998-05-28

NUMBER: OF SEQ ID NOS: 27

SOFTWARE: PETHING DATE: 1998-05-28

NUMBER: OF SEQ ID NOS: 27

SOFTWARE: PETHING DATE: 1998-05-38

TYPER: PRIOR FILING DATE: 1998-05-38

NUMBER: OF SEQ ID NOS: 27

SOFTWARE: PETHING DATE: 1998-05-38

NUMBER: PRIOR FILING DATE: 1998-05-38

NUMBER: OF SEQ ID NOS: 27

SOFTWARE: PETHING DATE: 1998-05-38

NUMBER: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
NUMBER: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
SOFTWARE: PRI 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ·.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 655;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 3331; DB 9;
Pred. No. 6.1e-298;
1; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-866-866A-10
; Sequence 10, Application US/09866866A
; Patent No. US20020102244A1
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity 99.4%;
Matches 651; Conservative 1
                                                                                                         61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                601
                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                         a
                                                                                                      à
                                                                                                                                          g
                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                   요
                                                                                                                                                                                                                                                                                                     ð
                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                       ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                        181 QFIRGVSGGERKRISIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSKQGRTIIF 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DSTAVALNREEDFKATEIIEPSKODKPLIEKLAEIYVNSSFYKETKAELHQLSGGEKKKK 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              361 ITVPKEISYTTSFCHQLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDS 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      421 TGIQNRAGVLFFLTTNQCFSSVSAVELFVVBKKLFIHEYISGYYRVSSYFLGKLLSDLLP 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MIMLPSIIFTCIVYFWLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGOSVVSVATLL 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KEILSNINGIMKPGLMAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN 120
                                                                                                                                                                                                                          121 SGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNBRINRVIQELGLDKVADSKVGT 180
                                                                                                                                                                                                                                                                                                                                                                                                                         DSTAVALNREEDFKATELIEPSKODKPLIEKLABIYVNSSFYKETKAELHOLSGGEKKKK 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    361 ITVFKEISYTTSFCHQLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDS 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGIQNRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLLP 480
                                                                                                                                                                                   SGYVVODDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGT 180
                                                                                                                                                                                                                                                                                       QFIRGVSGGERKRISIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSKQGRIIIF 240
                                                                                                                                                                                                                                                                                                                                                                                          SIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING 300
1 MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCKKPVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEMIPSIIFTCIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGOSVVSVATLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  541 MTICFVFMMIFSGLLVNLTTIASWLSWLQYFSIPRYGFTALQHNEFLGQNFCPGLNATGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     and/or Isolating Stem Cells
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      601 NPCNYATCTGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKLLFLKKYS 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 3338; DB 9;
Pred. No. 1.4e-298;
0; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 27, Application US/0986686A

Patent No. US20020102244A1

GENERAL INFORMATION:
APPLICANT: Screetino, Brian
APPLICANT: Screetino, Brian
APPLICANT: Schuetz, John
ITILE OF INVENTION: A Method of Identifying and
FILE REFERENCE: 1340-1-021CIP2
CURRENT APPLICATION NUMBER: US/09/866,866A

CURRENT FILING DATE: 2000-05-31
PRIOR APPLICATION NUMBER: PCT/US99/11825
PRIOR APPLICATION NUMBER: PCT/US99/11825
PRIOR APPLICATION NUMBER: 60/086,988
PRIOR APPLICATION NUMBER: 60/086,988
PRIOR FILING DATE: 1998-05-28
NUMBER OF SEQ ID NOS: 27

SOFTWARE: PATENTH NOS: 27

SOFTWARE: PATENTH NUMBER: BATENTH NUMBER: 60/086,988
PRIOR FILING DATE: 1998-05-28

NUMBER OF SEQ ID NOS: 27

SOFTWARE: PATENTH NUMBER: DATE: 1998-05-28

MUMBER OF SEQ ID NOS: 27

LENGTH 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity 99.7%;
Matches 653; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 6
US-09-866-866A-27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-866-866A-27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        601
                                                                                61
                                                                                                                               61
                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                       181
                                                                                                                                                                                                                                                                                                                                                                                             241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                              원
장
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                à
                                                                                                                      8 8
                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                           a
                                                                                                                                                                                                                                                                                                                                                                                        ò
```

ö

180 240 240 300 300 360

180

842 1 24

```
MIICEVEMMI FSGLLVNLTITASWLSWLQYFSIPRYGFTALQHNEFLGQNFCPGLNATGN 600
                                                                                                                                                                                                                                                                                                                                                                                                        TGIQNRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLLP
                                                                                                                                                                                                                                                                            241 SIHOPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING
                                                                                                                                                                                                                                                                                                            SIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MIMLPSIIFICIVYFMLGLKPKADAFFVMMFTLIMWVAYSASSMALAIAAGQSVVSVATLL
                                OFIRGVSGGERKRISIGMELITDPSILFLDEPITGLDSSTANAVLLLLKRMSKQGRIIIF
                                                                                                                                                                                                           DSTAVALNREEDFKATELLEPSKODKPLIEKLAELYVNSSFYKETKAELHQLSGGEKKKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ITVFKEISYTTSFCHOLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDS
KEILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN
                                                                                         SGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             601 NPCNYATCTGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKLLFLKKYS 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Merberg, David
Treacy, Maurice
Spaulding, Vikki
TITLE OF INVENTION: SECRETED PROTEINS AND POLYNUCLEOTIDES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER: IBM PC Compatible
COMPUTER: IBM PC Compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION WHERE: US/09/745,763
FILING DATE: 18-Jun-2000
CLASSIFICATION: <UNKNOWN>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NUMBER OF SEQUENCES: 219
CORRESPONDENCE ADDRESS:
ADDRESSEE Genetics Institute, Inc.
STREET: 87 CambridgePark Drive
CITY: Cambridge
STATE: MA
COUNTRY: U.S.A.
ZIP: 02140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           McCoy, John M.
LaVallie, Edward R.
Collins-Racie, Lisa A.
Evans, Cheryl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 197, Application US/09745763 Patent No. US20020065394A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Jacobs, Kenneth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 9
US-09-745-763-197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 601
                                                 61
                                                                                                 121
                                                                                                                                             121
                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                                                                241
                                                                                                                                                                                                                                                                                                                                                                                301
                                                                                                                                                                                                                                                                                                                                                                                                                            301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   421
                                                                                                                                                                                                                                                                                                                                                                                                                8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          a
                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                             ò
                                       g
                                                                                  ò
                                                                                                                              8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    540
                                                                                                                                                                                                                                                                                                                                                            240
                                                                                                                                                                                                                                                                                                                                                                                                                                    TGIONRAGVIPPLTTNOCPSSVSAVELFVVEKKIFIHEYISGYYRVSSYFIGKLISDILP 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MSSSNVEVFIPVSQGNTNGFPATVSNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE 60
                                                                                                                                                                                                                                                                  180
                                                                                                                                                                                                                                                                                                                                                                                                           SIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DSTAVALNREEDFKATEIIEPSKQDKPLIEKLAEIYVNSSFYKETKAELHQLSGGEKKKK 360
                                                                                                                         KEILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN 120
                                                                        9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MIMLESIIFICIVYENIGLKBXADAFFVMMFTLMMVAYSASSMALAIAAGOSVVSVATLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEMILESIIFTCIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGQSVVSVATLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                541 MTICFVFMMIFSGLLVNLTTIASWLSWLQYFSIPRYGFTALQHNEFLGQNFCPGLNATGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         361 ITVFKEISYTTSFCHQLRWYSKRSFKNLLGNDQASIAQIIVTVVLGLVIGAIYFGLKNDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ### WESSINGEVE I PROSECTION FOR THE WASSINGED OF THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE FOR THE F
                                                                                                                                                            KEILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN
                                                                                                                                                                                                                                              181 QFIRGVSGGERKRTSIGMELITDPSILSLDEPTTGLDSSTANAVLLLLKRMSKQGRTIIF
                                                                                                                                                                                                                   SGYVVQDDVVWGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGT
                                                                                                                                                                                                                                                                                                            QFIRGVSGGERKRISIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSKQGRTIIF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DSTAVALINREEDFKATELIEPSKODKPLIEKLAELYVNSSFYKETKAELHQLSGGEKKKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ITVFKEISYTTSFCHQLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NPCNYATCTGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKLLFLKKYS 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     501 NPCNYATCTGEEYLVKQGIDLSPWGLWKONYVALACMIVIFLTIAYLKLFLKKYS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AND USES THEREOF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 3331; DB 14;
Pred. No. 6.1e-298;
1; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-1U-USU-455-5

Sequence 5, Application US/10090455

Publication No. US20030027259A1

GENERAL INPORMATTON:

APPLICANT: Chen, Hongyun

APPLICANT: Le Bihan, Stephane

TITLE OF INVENTION: NOVEL ABCG4 TRANSPORTER AND

FILE REFERENCE: 100103.406

CURRENT APPLICATION WUMBER: US/10/090,455

CURRENT FILING DATE: 2002-03-01

NUMBER OF SEQ ID NOS: 17

SOFTWARE: FastSEQ for Windows Version 4.0

SEQ ID NO 5

LENGTH: 655

TYPE: PRT Homo sapiens

US-10-090-455-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity 99.4%;
Matches 651; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        481
                                                                                                                                                                         61
                                                                                                                                                                                                                        121
                                                                                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                                                                                                                241
                                                                                                                                                                                                                                                                                                                                                                                                                                                          241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            601
                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ઠે
                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                             ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        d
                                                                                                                              à
                                                                                                                                                                      g
                                                                                                                                                                                                                        ઠે
                                                                                                                                                                                                                                                                                                                      ઠે
```

420

480 480

420

540

540

900

<u>ب</u>

```
셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      d
                                                                                                                                                                                                                                                                                                                                                                                                                             8: g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 슝
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                \delta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    489
                                                                                                                                                                                                                                                                                                                                                                                                                                                61 KEILSNINGIMKPGLNAILGPTGGXKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QFIRGVSGGERKRISIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSKQGRIIIF 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 190 SIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING 249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DSTAVALNREEDFKATELIEPSKODKPLIEKLAELYVNSSFYKETKAELHQLSGGEKKKK 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DSTAVALNREEDFKATEIIEPSKQDKPLIEKLAEIYVNSSFYKETKAELHQLSGGEKKKK 309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       310 ITVFKEISYTTSFCHÖLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDS 369
                                                                                                                                                                                                                                                                                                                                                                                                            KEILSNINGIMKPGLNAILGPTGGGKS$LLDVLAARKDPSGLSGDVLINGAPRPANFKCN 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  121 SGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGT 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       130 QFIRGVSGGERKRISIGMELITDPSILFLDEPTIGLDSSTANAVLLLLKRMSKQGRTIIF 189
                                                                                                                                                                                                                                                                                                                                                                        1 MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MRMLPSIIFTCIVYFMLGLKPKADAFFVWMFTLMMVAYSASSMALAIAAGQSVVSVATLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 10
US-08-866-866A-14

Sequence 14, Application US/09866866A

Patent No. US20020102244A1

GENERAL INFORMATION:

APPLICANT: Sorrentino, Brian

APPLICANT: Schuetz, John

TITLE OF INVENTION: A Method of Identifying and/or Isolating Stem Cells
                                                                                                                                                                                                                                                                                                                                          1 MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    121 SGYVVQ-----VGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ITVPKEISYTTSFCHOLRMVSKRSPKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TGI ONRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEY I SGYYRVSSYFLGKLLSDLLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          370 TGIONRAGVIFFLTTNOCFSSVSAVELFVVEKKIFIHEYISGYYRVSSYFLGKLLSDLLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MIMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGQSVVSVATLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MTICFVFWMIFSGLLVNLTTIASWLSWLQYFSIPRYGFTALQHNEFLGQNFCPGLNATGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MTICEVEMMIFSGLLVNLTTIASWLSWLQYFSIPRYGFTALQHNEFLGQNFCPGLNATGN
                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NPCNYATCTGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKLLFLKKYS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NPCNYATCTGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKLLFLKKYS
                                                                                                                                                                                                                                                                                                     51;
                                                                                                                                                                                                                                                                     Length 604;
                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                   DB 9;
                                                                                                                                                                                                                                                                 Query Match 91.1%; Score 3053.5; DB 9; Best Local Similarity 91.9%; Pred. No. 2.1e-272; Matches 602; Conservative 0; Mismatches 2;
                                                                                                                                                         TOPOLOGY: linear

MOLECULE TYPE: procein

SEQUENCE DESCRIPTION: SEQ ID NO: 197:
US-09-745-763-197
NAME: Sprunger, Suzanne A.
REGISTRATION NUMBER: 41,323
TELECOMUNICATION INFORMATION:
TELEPHONE: (617) 498-8284
TELEPHONE: (617) 876-8851
INFORMATION FOR SEQ ID NO: 197:
SEQUENCE CHARACTERISTICS:
LENGTH: 604 anino acida
TYPE: anino acid
TYPE: anino acid
TYPE: anino acid
TYPE: anino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          601
                                                                                                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                            쉽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    \delta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 \delta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
```

ठ

ò

ò

```
179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  240 SIHQPRYSIFKLFDSLTLLASGKLVFHGPAQKALEYFASAGYHCEPYNNFADFFLDVING 299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       420 STGIQNRAGVLFELTTNQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLL 479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      480 PMTMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGQSVVSVATL 539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LMTICFVFMMIFSGLLVNLTTIASWLSWLQYFSIPRYGFTALQHNEFLGQNFCPGLNATG 599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 540 LMTIAFVFMMLFSGLLVNLRTIGPWLSWLQYFSIPRYGFTALQYNEFLGGGFFCPGFNVTD 599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60 KEILSDINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPKGLSGDVLINGAPQPAHFKCC 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        241 SIHOPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     360 KITVFKEISYTTSFCHOLRWVSKRSFKNILGNPOASIAQIIVTVVLGLVIGAIYFGLKND 419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KEILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               181 QFIRGVSGGERKRTSIGMELITDPSILFLDEPTTGLDSSTANAVLILLKRMSKQGRTIIF 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DSTAVALNREE-DFKATEIIEPSKODKPLIEKLAEIYVNSSFYKETKAELHQLSGGEKKK 359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NNPC--NYATCIGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLIIAYLKLLFLKKYS 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGT
                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                 4.
                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                                                                                                                                                                                 67;
                                                                                                                                                                                                                                                                                                                                                              ; Score 2757; DB 9;
; Pred. No. 5.5e-245;
51; Mismatches 67;
CURRENT APPLICATION NUMBER: US/09/866,866A
CURRENT FILING DATE: 2001-08-30
PRIOR APPLICATION NUMBER: 05/584,586
PRIOR FILING DATE: 2000-05-31
PRIOR FILING DATE: 2000-05-31
PRIOR FILING DATE: 1999-05-27
PRIOR FILING DATE: 1999-05-27
PRIOR FILING DATE: 1999-05-28
NUMBER OF SEQ ID NOS: 27
SOFTWARE: Patentin version 3.0
SERIOR OF SEQ ID NOS: 27
LENGTH: 657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 1520, Application US/10369493; Publication No. US20030233675A1; GENEAL INFORMATION: APPLICANT: Cao, Yongwei APPLICANT: Cao, Gregory J.
                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity 81.5%;
Matches 536; Conservative 5:
                                                                                                                                                                                                                                                                                                ) ORGANISM: Mus musculus
US-09-866-866A-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-10-369-493-1520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      600
```

ENCODE

```
APPLICANT: Stam, Lynn
APPLICANT: Stam, Lynn
APPLICANT: Stam, Lynn
APPLICANT: Stam, Lynn
APPLICANT: Stam, Lynn
APPLICANT: Stam, Lynn
APPLICANT: Stam, Lynn
APPLICANT: Stamdar, Lynn
APPLICANT: Kandar, Kim
TITLE OF INVENTION: NUCLEIC ACID SECUENCES FROM DROSOPHILA MELANOGASTER THAT E
TITLE OF INVENTION: PROTEINS ESSENTIAL FOR LARVAL VIABILITY AND USES THEREOF
FILE REPERENCE: 3103B
CURRENT APPLICATION NUMBER: US/10/108,605
CURRENT FILING DATE: 2001-01-16
PRIOR FILING DATE: 2001-01-16
PRIOR FILING DATE: 2000-01-14
NUMBER OF SEQ ID NOS: 361
SEQ ID NO 2455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     298 INGDSTAVALNREEDFKATEIIEPSKQDKPLIEKLAEIYVNSSFYKETKAELHQLSGGEK 357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          90 XAVCGVAYPGELLAVMGSSGAGKTTLLNALAFR-SPQGIQVSPSGMRLLNGQPVDAKEMQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       149 ARCAYVQQDDLFIGSLTAREHLIFQAMVRMPRHLTYRQRVARVDQVIQELSLSKCQHTII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     209 GVPGRVKGLSGGERKRLAFASEALTDPPLLICDEPTSGLDSFTAHSVVQVLKKLSQKGKT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  428 QQLTQVGVMNINGAIFLELTNMTFQNVFATINVFTSELPVFWREARSRLYRCDTYFLGKT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  488 IAE-LPLFLIVPLVPTAIAYPMIGLRAGVIHFFNCLALVTLVANVSTSFGYLISCASSST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   65 SNINGIMKPG-LNAILGPTGGGKSSLLDVLAARKDPSGL----SGDVLINGAPRPA-NFK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                119 CNSGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            179 GTQ-FIRGVSGGERKRTSIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSKQGRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         238 IĮPSIHOPRYSIFKLFDSLTLLASGRLMFHGPAOEALGYFESAGYHCBAYNNPADFFLDI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  358 KKKITVFKEISYT--TSFCHQLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              416 LKNDSTGIQNRAGVLFFLTTNQCFSSVSA-VELFVVEKKLFIHEYISGYYRVSSYFLGKL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LSDLLPMTMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGQSVV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       535 SVATILMTICFVFMMIFSGLLVNLTTIASWLSWLQYFSIPRYGFTALQHNEFLGQNFCPG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5 NVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVEKEIL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           50 NMDIFGAVNQ-----PGSGWRQLVNRTRGLFCNERHI------PAPR---KHLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  595 -LNATGNNPCNYATCTGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKL 648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 663;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
24.2%; Score 812; DB 13;
Best Local Similarity 32.1%; Pred. No. 1.6e-65;
Matches 210; Conservative 134; Mismatches 251;
                                                              ; Sequence 245, Application US/10108605; Publication No. US20020160934A1; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                              TYPE: PRT
ORGANISM: Drosophila melanogaster
                                                                                                                         APPLICANT: Broadus, Julie APPLICANT: Stam, Lynn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-10-108-605-245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                임
APPLICANT: Slater, Steven C.
APPLICANT: Goldman, Barry S.
APPLICANT: Goldman, Barry S.
APPLICANT: Goldman, Barry S.
APPLICANT: Chen, Xianfeng
TITLE OF INVENTION: EXPRESSION OF MICROBIAL PROTEINS IN PLANTS FOR PRODUCTION OF
TITLE OF INVENTION: PLANTS WITH IMPROVED PROPERTIES
FILE REFERENCE: 38-10(52022)B
CURRENT FAPLICATION NUMBER: US/10/369,493
CURRENT FILING DATE: 2003-02-28
PRIOR APPLICATION NUMBER: US 60/360,039
PRIOR PILING DATE: 2002-22
NUMBER OF SC ID NOS: 47374
SEQ ID NO 1520
LENGTH: 1049
                                                                                                                                                                                                                                                                                                                                                                                   18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     997 YGLNIEVPG------ATILSTFGFVVQNLVFDIK------ILALFNVVFLIM 1036
                                                                                                                                                                                                                                                                                                                                                                                                                                                            LGSSKSPIRLP-DEDAVNNFLQNEDDTL-----ATLSFENITYSVPSINS-----DGVE 402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KEILSNINGIMKPG-LNAILGPIGGGKSSLLDVLAARKDPSGLSGDVLINGAPRP-ANFK 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ETVLNEISGIVKPGQILAIMGGSGAGKTTLLDILAMKRKTGHVSGSIKVNGISMDRKSFS 462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CNSGYVVQDDVVMGTLIVRENLQFSAALRLATTMINHEKNERINRVIQELGLDKVADSKV 178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            643 TFEAGPOGKRRRIRNISDLEAGTDTNDIDNTIHOTTFTSSDGTTOREWAHLAAHRDEIRS 702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ALNREEDFKATE----IIEPSKQDKPLIEKLAEIYVNSSFYKETKAELHQ-LSGGEKKKK 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LGONF-CPGLNATGNNPCNYATCTGEEYLVKQGI--DLSPWGLWKNHVALACMIVIFLTI 643
                                                                                                                                                                                                                                                                                                                                                                                                                        9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTOFIRGVSGGERKRISIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSKQ-GRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GNEFDRGISGGEKRRVSIACELVTSPLVLFLDEPTSGLDASNANNVIECLVRLSSDYNRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IIFSIHQPRYSIFKLFDSLTLLASGRLMFHGPAQBALGYFBSAGYHCBAYNNPADFFLDI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ---INGDSTAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IT--VFKEISYTTSFCHQLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DSTGIONRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LPMTMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGQSVVSVAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LLMTICFVFMMIFSGLLV---NLTTIASWLSWLQYFSIPRYGFTALQHNEF-----
                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                Indels 115;
                                                                                                                                                                                                                                                                                                                                         Query Match
24.9%; Score 835.5; DB 15; Length 1049;
Best Local Similarity 30.5%; Pred. No. 2.2e-67;
Matches 222; Conservative 134; Mismatches 257; Indels 115;
                                                                                                                                                                                                                                                             ; TYPE: PRT
; ORGANISM: Saccharomyces cerevisiae
US-10-369-493-1520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1037 GYLALKWI 1044
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AYLKLLFL 651
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      539
                                                                                                                                                                                                                                                                                                                                                                                                                                                              355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       703
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              879
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           939
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             419
                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ઠે
```

148 178

64 89 237 268 328

367 415 427 474 487 534 546 594 604

d

```
Sequence 63125, Application US/10425114

Publication No. US2004003488A1

GENERAL INCPRARATION:
APPLICANT: Liu, Jingdong
APPLICANT: Zhou, Yihua
APPLICANT: Screen, Steven E
APPLICANT: Tabaska, Jack E
APPLICANT: Tabaska, Jack E
APPLICANT: Tabaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Screen, Steven E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: Palaska, Jack E
APPLICANT: 
                                                                          ---IEVPGSAILSSFGFDV--LALWRDVAGLG 1062
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                94 AARKDPSGLS-GDVLINGAP-RPANFKCNSGYVVODDVVMGTLTVRENLOFSAALRLATT 151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           210 DEPTTGLDSSTA-NAVLLLLKRMSKQGRTIIFSIHQPRYSIFKLFDSLTLLASGRLMFHG 268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               677 TMAVKSIPSIİSNPSIEEGRPKNKRKSSIRQQQERQLFSRKSTDRAPAPASLRSDGDSIL 736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        796
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----QLSGGEKKKKITVFKEISYTTSFCHQLRWVSKRSFKWLLGNPQASIAQI 399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      137 DKDNKMVKMARQNAQGSSINEDGHDLPPDAGNNTNLDVLVSSYEASDVKAELHSDIESAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IVTVVLGLVIGAIYFGLXNDSTGIQNBAGVLFFLTTNQCFSSVSAVBLFVVFKKLFIHEY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -----INGDSTAVAL
                                580 ALQHNE-----FLGQNFCPGLNATGNNPCNYATCTGEEYLVKQGIDLSPWGLWKNHVALA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MINHEKNERINRVIQELGLDKVADSKVGTQ--FIRGVSGGERKRTSIGMELITDPSILFL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----EIYVNSSFYKETKAELH-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       35 AVLSFHNICYRVKLKSGFLPCRKPVEKEILSNINGIMKPG-LNAILGPTGGGKSSLLDVL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 24.0%; Score 805; DB 12; Length 1101; Best Local Similarity 29.4%; Pred. No. 1.5e-64; Matches 217; Conservative 120; Mismatches 250; Indels 150;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        308 NREEDFKATEIIEPS-------KODKPLIE-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PAQEALGYFESAGYHCEAYNNPADFFLDI--------
                                                                                            .016 GLIVNEVRYLSLVDKKY--GLN----
                                                                                                                                                                                                                            1063 VVSGAFFVLGFALHFL 1079
                                                                                                                                                                651
                                                                                                                                                                635 CMIVIFLTIAYLKLLFL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM: Glycine max
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                              9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Б
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                 셤
                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                 Sequence 242078, Application US/10424599
Sequence 242078, Application US/10424599
Publication No. US20040031072A1
Septence 242078, Application US/10424599
Publication No. US20040031072A1
SPELICANT: La Rosa Thomas J
APPLICANT: Zhou Yihua
APPLICANT: Cao Yongwei
APPLICANT: Cao Yongwei
TITLE OF INVENTION: Soy Nucleic Acid Molecules and Other Molecules Associated With
TITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement
FILE REPERENCE: 38 221(5323)B
CURRENT APPLICATION NUMBER: US/10/424,599
CURRENT FILING DATE: 2003-04-28
NUMBER OF SEQ ID NOS: 285684
LENGTH: 1084
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | : :::|| || : :::| | : :::| | : :::| | : :::| | : :::| | : :::| | : :::| | : :::| | : :::| : :::| : :::| : ::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   421 -ARKNKRGTGLGDFWVNGEKITDDDFRSAIGFVDQDDTMLPTLTVHETIMDSALLRLPYD 479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              210 DEPTTGLDSSTA-NAVLLLLKRMSKQGRTIIFSIHQPRYSIFKLFDSLTLLASGRLMFHG 268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  : | | : | | | 660 TMAVKSIPSIISNPSIEEGRPKNKRKSSIRQQQERQLFSRKSTDRAPAPASLRSDGDSIL 719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----EIYVNSSFYKETKAELH----- 350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      351 ------QLSGGEKKKKITVFKEISYTŢSFCHQLRWVSKRSFKNLLGNPQASIAQI 399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    94 AARKDPSGLS-GDVLINGAP-RPANFKCNSGYVVQDDVVMGTLTVRENLQFSAALRLATT 151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           269 PAQBALGYFESAGYHCEAYNNPADFFLDI----------INGDSŢAVAL 307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  836 AIAILLAVFLGFLFYGLTDDLKGFRGNRLGFFFLLALFGFSTLTSLTTFAPERLLFVRER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               540 YEPTSGLDAYNAFNVIECLVTLVKSYNRTVVFTIHQPRSNIVALFDQLVLLAQGRIVYSG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               460 ISGYYRVSSYPLGKLISDLLPMTMLPSIIFTCIVYFMLGLKPKADAFPVMMFTLMMVAYS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ASSMALAIAAGOSVVSVATLLMTICFVFWMIFSGLLVNLTTIASWLSWLQYFSIPRYGFT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    35 AVLSFHNICYRVKLKSGFLPCRKPVEKEILSNINGIMKPG-LNAILGPTGGGKSSLLDVL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    152 MINHEKNERINRVIQELGLDKVADSKVGTQ--FIRGVSGGERKRISIGMELITDPSILFL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           308 NREEDFKATELIEPS-------KQDKPLIE-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               400 IVTVVLGLVIGAIYFGLKNDSTGIQNRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEY
605 EISCTSSN----TTCPSSGKVILETLNFSAADLPLDYVGLAILIVSFRVLAYLAL 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 24.0%; Score 805; DB 12; Length 1084; Best Local Similarity 29.4%; Pred. No. 1.5e-64; Matches 217; Conservative 120; Mismatches 250; Indels 150;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; OTHER INFORMATION: Clone ID: PAT_MRT3847_60623C.1.pep
US-10-424-599-242078
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----KLA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TYPE: PRT
ORGANISM: Glycine max
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           331
```

g

셤 ò

ద à d δ g

ò

g

ઠે

셤 à g à g 8 g

ઠ

```
489 FTCIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALALAAAGQSVVSVATLLMTICFVFM 548
                                                                                                                                                                                                                   VLFFLTTNQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLLPMTMLPSII 488
                                                            361 ATGTDLDVLIESYIHSDIAASTHEEIHQALAAAVNSNGQNSNGYVADGNI-YTGTMGKGY
                                       371 --TSFCHQLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDSTGIQNRAG
                                                                                                                                                                                                                                                                                                    549 MIFSGLLVNLTTIASWLSWLQYFSIPRYGFTALQHNE 585
                                                                                                                                                                                                                                                                                                                                                                        Search completed: March 23, 2004, 18:37:18
Job time : 59 secs
                                                                                                                                                                                                                                                                         ò
                                                                            g
                                                                                                                                            . q
                                                                                                                                                                                                                               g
                                       ð
                                                                                                                      8
                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                       US-10-369-493-3799

Sequence 3799, Application US/10369493

Sequence 3799, Application US/10369493

Sequence 3799, Application US/2030233675A1

GENERAL INFORMATION:
APPLICANT: Hinkle, Gregory J.
APPLICANT: Stater, Steven C.
APPLICANT: Goldman, Barry S.
APPLICANT: Goldman, Barry S.
TITLE OF INVENTION: PLANTS WITH IMPROVED PROPERTIES
TITLE OF INVENTION: PLANTS WITH IMPROVED PROPERTIES
TITLE OF INVENTION: PLANTS WITH IMPROVED PROPERTIES
TITLE OF INVENTION: PLANTS WITH IMPROVED PROPERTIES
TITLE OF INVENTION NUMBER: US 60/360,039
CURRENT FILING DATE: 2003-02-28

PRIOR FILING DATE: 2002-02-21

NUMBER OF SEQ ID NOS: 47374

TANGENT OF SEQ ID NOS: 47374

TANGENT OF SEQ ID NOS: 47374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      11;
                                                                                                                                          .033 GLIVNEVRYLSLVDKKY--GLN------IEVPGSAILSSFGFDV--LALWRDVAGLG 1079
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               301 RDSVRRRQERELYTRRKQAVDTAASSDAGDEIGGYKLQKQPPVTPLRSTNDDIHDLPPLA 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      119 CNSGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKV 178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RTIIFSIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFL 295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61 KEILSNINGIMKPG-LNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAP-RPANFK 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTQ--FIRGVSGGERKRISIGMELLTDPSILFLDEPTTGLDSSTA-NAVLLLLKRMSKQG 235
                                           460 ISGYYRVSSYFLGKLLSDLLPMTMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMMVAYS 519
                                                                  580 ALOHNE-----FLGONFCPGLNATGNNPCNYATCTGEEYLVKOGIDLSPWGLWKNHVALA 634
      853 AIAILLAVFLGFLFYGLTDDLKGFQNRLGFFFFLLALFGFSTLTSLTTFAPERLLFVRER 912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DI-----TEILEPS----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   241 DLTMHAGSTSSYDDGTLSVDGVSVGPSSTRAVKSIASVSGVSIGDDSLVESSSSRPRNKR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ----IEKLABIYVNSSFYKETKABLHQL-----SGGEKKKKITVFKEISYT-----
                                                                                                                      520 ASSMALAIAAGQSVVSVATLLMTICFVFMMIFSGLLVNLTTIASWLSWLQYFSIPRYGFT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 23.7%; Score 795.5; DB 15; Length 676; Best Local Similarity 31.2%; Pred. No. 5.4e-64; Matches 199; Conservative 107; Mismatches 218; Indels 113;
                                                                                                                                                                                                                                                                                                        1080 VVSGAFFVLGFAALHFL 1096
                                                                                                                                                                                                                                                                           635 CMIVIFLTIAYLKLLFL 651
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM: Neurospora crassa
US-10-369-493-3799
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         쉱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                         ठ
                                                                              d
                                                                                                                      ઠે
                                                                                                                                                     셤
                                                                                                                                                                                                ò
                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                           ò
```

```
Sequence 1, Application US/6245808
Sequence 1, Application US/6245808
Patent No. 6313277
GENERAL INFORMATION:
GENERAL INFORMATION:
APPLICANT: BOYLE, America
TITLE OF INVENTION: Breast Cancer Resistance Protein (BCRP) and DNA which
TITLE OF INVENTION: Breast Cancer Resistance Protein (BCRP) and DNA which
TITLE OF INVENTION: Breast Cancer Resistance Protein (BCRP) and DNA which
TITLE OF INVENTION: Breast Cancer Resistance Protein (BCRP) and DNA which
TITLE OF INVENTION: Broad Cancer Resistance Protein (BCRP) and DNA which
TITLE OF INVENTION: Broad Cancer Resistance Protein (BCRP) and DNA which
TITLE OF INVENTION: Broad Cancer Resistance Protein (BCRP) and DNA which
TITLE OF INVENTION WHORER: BOX 05/073763
EARLIER APPLICATION NUMBER: 60/073763
BARLIER FILING DATE: 1998-02-05
SEQ ID NOS: 7
SEQ ID NO 1.
Sequence 3925, Ap Sequence 5879, Appli Sequence 17, Appli Sequence 1736, A Sequence 3752, Ap Sequence 31, Appl Sequence 31, Appl Sequence 131, Appl Sequence 1310, Appl Sequence 13021, A Sequence 13021, A Sequence 2702, Ap Sequence 2702, Ap Sequence 2702, Appl Sequence 2702, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl Sequence 769, Appl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DSTAVALNREEDFKATEIIEPSKQDKPLIEKLAEIYVNSSFYKETKAELHQLSGGEKKKK 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DSTAVALNREEDFKATEIIEPSKODKPLIEKLAEIYVNSSFYKETKAELHQLSGGEKKKK 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61 KEILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                121 SGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OPIRGVSGGERKRISIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSKQGRIIIF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KEILSNINGIMKPGLNAILGPIGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 655;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                 US-08-612-521-2
US-09-134-000C-5879
US-09-134-000C-5879
US-09-328-322-7027
US-09-328-322-7027
US-09-134-00C-3752
US-08-46-886-31
US-08-46-96-77-31
US-08-469-677-31
US-09-489-039A-1359
US-09-489-039A-1321
US-09-489-039A-1626
US-09-525-991A-2769
US-09-540-276-2702
US-09-198-428-769
US-09-198-428-769
US-09-198-428-769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 100.0%; Score 3352; Best Local Similarity 100.0%; Pred. No. 0; Matches 655; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                      ALIGNMENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ) ORGANISM: Human MCF-7/AdrVp cells
US-09-245-808-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-245-808-1
    7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181
      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            \delta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       \stackrel{>}{\circ}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 1, Appli
Sequence 138, App
Sequence 138, App
Sequence 36, Appl
Sequence 5561, App
Sequence 5561, Appl
Sequence 25, Appl
Sequence 75, Appl
Sequence 75, Appl
Sequence 3641, Ap
Sequence 3649, Ap
Sequence 349, Ap
Sequence 349, Ap
Sequence 349, Ap
Sequence 2, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 7, Appli
Sequence 7, Appli
Sequence 7, Appli
Sequence 7, Appli
Sequence 7, Appli
Sequence 7, Appli
Sequence 7, Appli
Sequence 7, Appli
Sequence 7, Appli
Sequence 7, Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 1, Appli
Sequence 1, Appli
                                                                                                                                              March 23, 2004, 18:28:24; Search time 23 Seconds (without alignments) 1470.218 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                US-09-961-086-1
3352
1 MSSSNVEVFIPVSQGNTNGF......MIVIFLTIAYLKLLFLKKYS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1: /cgn2 6/ptodata/2/iaa/5A_COMB.pep:*
2: /cgn2_6/ptodata/2/iaa/5B_COMB.pep:*
3: /cgn2_6/ptodata/2/iaa/6A_COMB.pep:*
4: /cgn2_6/ptodata/2/iaa/6B_COMB.pep:*
5: /cgn2_6/ptodata/2/iaa/PCTUS_COMB.pep:*
6: /cgn2_6/ptodata/2/iaa/PCTUS_COMB.pep:*
                            5.1.6
Compugen Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-489-039A-8496
US-09-543-681A-6727
US-09-543-681A-7603
US-09-489-039A-12478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-245-808-1

US-09-76-594-1

US-09-614-912-140

US-09-614-912-144

US-10-162-012-36

US-10-162-012-36

US-09-134-001C-556

US-09-134-001C-556

US-08-762-500-75

US-08-762-500-75

US-08-762-500-75

US-08-762-500-75

US-08-134-001C-3641

US-09-107-532A-4662

US-09-107-532A-4662

US-09-107-532A-4662

US-09-107-532A-4662

US-09-107-532A-4662

US-09-107-532A-3849

US-09-113-001C-3641

US-09-113-001C-3641

US-09-113-001C-3641

US-09-113-001C-3641

US-09-113-001C-3584

US-09-113-001C-3584
                                                                                                                                                                                                                                                                                                                                                                                                                        hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                389414 seqs, 51625971 residues
                            version -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                          protein search, using sw model
                                                                                                                                                                                                                                                                                                                  BLOSUM62
Gapop 10.0 , Gapext 0.5
                            GenCore (c) 1993 .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Patents AA:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                seq length: 0
seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Copyright
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Issued
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                           Total number of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       score:
                                                                                                                                                                                                                                                                                                                       Scoring table:
                                                                                                            1
                                                                                                            OM protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                 Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Result
No.
                                                                                                                                                       Run on
```

ö

120

9

180 180 240 240 Section 1

us-09-961-086-1.rai

셤 $\dot{\varsigma}$ g ò g ò 셤 ö d

```
22;
                                                                                                     420
                                                                                                                                                        420
                                                                                                                                                                                                           480
                                                                                                                                                                                                                                                                 480
                                                                                                                                                                                                                                                                                                                    540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       86 KSSLLDVLAARKDPSGLSGDVLINGAPR-PANFKCNSGYVVQDDVVMGTLTVRENLQFSA 144
                                                301 DSTAVALNREEDFKATEIIEPSKODKPLIEKLAEIYVNSSFYKETKAELHQLSGGEKKKK 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                                                                                                             481 MRMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGQSVVSVATLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      361 ITVPKEISYTTSFCHOLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDS
                                                                                                                                                                                                           421 TGIONRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLLP
                                                                                                                                                                                                                                             481 MTMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGQSVVSVATLL
301 DSTAVALNREEDFKATEIIEFSKQDKPLIEKLAEIYVNSSFYKETKAELHQLSGGEKKKK
                                                                                                     ITVFKEISYTTSFCHQLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDS
                                                                                                                                                                                                                                                                                                                                                                                                                            541 MTICFVFMMIFSGLLVNLTTIASWLSWLQYFSIPRYGFTALQHNEFLGQNFCPGLNATGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          541 MTICEVEMMIESGLLVNLTTIASWLSWLQYFSIPRYGFTALQHNEFLGQNFCPGLNATGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    37 LSFHNICYRVKLKSGFLPCRKPVEK------EILSNINGIMKPG-LNAILGPTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 601 NPCNYATCTGEEYLVKQGIDLSPWGLWKONHVALACMIVIFLTIAYLKCLFLKKYS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  601 NPCNYATCTGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKLLFLKKYS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              94;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 617;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
16.9%; Score 567; DB 4; Length 61'
Best Local Similarity 28.0%; Pred. No. 8.4e-50;
Matches 169; Conservative 117; Mismatches 224; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: CLICACO, NAMELY
APPLICANT: Famedu, Omolayo O.
APPLICANT: Famedu, Omolayo O.
APPLICANT: Sakai, Hajime
APPLICANT: Sakai, Hajime
APPLICANT: Sakai, Hajime
APPLICANT: Sakai, Hajime
APPLICANT: Anderson, Shawn
TITLE OF INVENTION: Plant Metabolism Genes
FILE REFERENCE: BB1379 US NA
CURRENT APPLICATION NUMBER: US/09/614,912
CURRENT FILING DATE: 1999-07-12
PRIOR FILING DATE: 1999-07-12
PRIOR PILING DATE: 1999-07-12
PRIOR APPLICATION NUMBER: 60/143,412
PRIOR PILING DATE: 1999-07-12
PRIOR APPLICATION NUMBER: 60/170,906
PRIOR PILING DATE: 1999-12-15
PRIOR PILING DATE: 1999-12-15
PRIOR PILING DATE: 1999-12-15
PRIOR PILING DATE: 1999-12-15
PRIOR PILING DATE: 1999-12-15
PRIOR PILING DATE: 1999-12-15
PRIOR APPLICATION NUMBER: 60/172,946
PRIOR PILING DATE: 1999-12-11
NUMBER OF SEQ ID NOS: 204
SEQ ID NO 138
LENGTHE: 617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; Sequence 138, Application US/09614912; Patent No. 6677502; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Allen, Steve
Rafalski, Antoni
Orozco, Buddy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TYPE: PRT
CORGANISM: Zea mays
US-09-614-912-138
                                                                                                        361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                             d
                                                                                                                                                                                                                                                           원
                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                     ò
                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Bates, Susan
APPLICANT: Bates, Susan
APPLICANT: Bates, Susan
APPLICANT: Bates, Susan
APPLICANT: The Government of the United States of America
APPLICANT: The Government of the Secretary of the
APPLICANT: Department of Health and Human Services
ITLE OF INVENTION: Inhibition of MXR Transport by Acridine Derivatives
FILE REPRENCE: 015280-402100US
CURRENT APPLICATION WUMBER: US 60/177,410
PRIOR APPLICATION WUMBER: US 60/177,410
PRIOR FILING DATE: 2000-01-20
NUMBER OF SEQ ID NOS: 2
SOFTWARE: Patentin Ver. 2.1
SEQ ID NO 1
LENGTH: 655
                                                                                                                                                                                                                                                                                  MIMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGQSVVSVATLL 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              121 SGYVVQDDVVMGTLTVRENLQFSAALRLATTMTWHEKNERINRVIEELGLDKVADSKVGT 180
                                                     361 ITVFKEISYTTSFCHQLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDS 420
                                                                                                                                                                                                                                       MIMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGOSVVSVATLL 540
                                                                                                                                                                                                                                                                                                                                             MIICFVFMMIFSGLLVNLTIIASWLSWLQYFSIPRYGFTALQHNEFLGQNFCPGLNATGN 600
                                                                                                                                                                                                                                                                                                                                                                       KEILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KEILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGT 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OFIRGVSGGERKRISIGMELITDPSILFLDEPTIGLDSSTANAVLLLLKRMSKOGRTIIF 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SIHOPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING 300
                                                                                                                               TGIQNRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLLP 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 MSSSNVEVFIPVŠQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MSSSNVEVFIPVSQGNTNGFPATVSNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE 60
                                                                                                                                                                         TGI ONRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                      601 NPCNYATCTGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKLLFLKKYS 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  601 NPCNYATCTGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTJAYLKLLFLKKYS 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURE:
COTHER INFORMATION: human mitoxanthrone resistance (MXR)/BRCP/ABCP
COTHER INFORMATION: protein
US-09-767-594-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match

99.4%; Score 3331; DB 4; Length 655;
Best Local Similarity 99.4%; Pred. No. 0;
Matches 651; Conservative 1; Mismatches 3; Indels (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 1, Application US/09767594 Patent No. 6521635
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TYPE: PRT
ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                          541
                                                                                                                            421
                                                                                                                                                                                  421
                                                                                                                                                                                                                                     481
                                                                                                                                                                                                                                                                                        481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          241
```

셤 ठे a 8 g ò g ò

ठे

22

745

90

865

```
SILFLDEPITGLDSSTANAVLLLLKRMSKQGRTIIFSIHQPRYSIFKLFDSLTLL-ASGR 263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    926 VIYSGQLGRNSQKMIBYFBAIPGVPKIKDKY-----NPATWMLEV---SSVAAEVRLNM 976
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               429 VLF----FLTTNQCFSSVSAVELFVVEXKLFIHEYISGYYRVSSYFLGKLLSDLLPMTML 484
                                                                                                                                                                                                                                                                                       DVLAARKDPSGLSGDVLINGAPR-PANFKCNSGYVVQDDVVMGTLTVRENLOFSAALRLA 149
                                                                                                                                                                                                                                                                                                                 264 LMFHGP----AQEALGYFESA-----GYHCEAYNNPADFFLDIINGDSTAVALNREE 311
                                                                                                                                                                                                                                 37 LSFHNICYRVKL----KSGFLPCRKPVEKEILSNINGIMKPG-LNAILGPIGGGKSSLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           312 DPKATEIIEPSKQDKPLIEKLAEIYVNSSFYKETKAELHQLSGGEKKKKITVFKEISYTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 372 SFCHOLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYF--GLK-NDSTGIQNRAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PSIIFTCIVYFMLGLKPKADA----FFVMMFTLMMVAYSASSMALAIAAGQSVVSVATLL
                                                                                                                                                                                                                                                                                                                                                                       TIMINHE-----KNERINRVIQELGLDKVADSKVGTQFIRGVSGGERKRISIGMELITDP
                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAAFYSLFNLFSRFFIPRPRIPKWWIW-YYWLCPLAWTUYGLIUTQYGD 1236
                                                                                                                                                                  82;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                541 MTICFVFMMIFSGLLVNLTTIASWLSWLQYFSIPR----YGFTALQHNE 585
                                                                                                                           Length 1296;
                                                                                                                                                                  Indels
                                                                                                                       Query Match
16.0%; Score 537; DB 4; Le
Best Local Similarity 27.5%; Pred. No. 3.9e-46;
Matches 162; Conservative 115; Mismatches 230;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Caint, Perry G
APPLICANT: Anderson, Shawn
TITLE OF INVENTION: Plant Metabolism Genes
FILE REFERENCE: BB1376 US NA
CURRENT APPLICATION NUMBER: US/09/614,912
CURRENT FILING DATE: 2000-07-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CURRENT FILING DATE: 2000-07-12
PRIOR APPLICATION NUMBER: 60/143,401
PRIOR FILING DATE: 1999-07-12
PRIOR APPLICATION NUMBER: 60/143,412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 144, Application US/09614912
Patent No. 6677502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Miao, Gou-Hau
Famodu, Omolayo O.
Lee, Jian Ming
Sakai, Hajime
Weng, Zude
Caimi, Perry G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Allen, Steve
Rafalski, Antoni
Orozco, Buddy
Miao, Gou-Hau
; SEQ ID NO 140
; LENGTH: 1296
; TYPE: PRT
; ORGANISM: Oryza Bativa
US-09-614-912-140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 5
US-09-614-912-144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                690
                                                                                                                                                                                                                                                                                       91
                                                                                                                                                                                                                                                                                                                                                                       150
                                                                                                                                                                                                                                                                                                                                                                                                                                                     205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                         ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 393 GMVIGAMYTAVMFIGINNC-STVQPV--VSIERTVFYRERAAGMYSAMPYAIAQVVIE-I 448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 259
                                                                                                                                                                                      241
                                                                                                                                                                                                                          260 -ASGRIMFHGP----AQEALGYFESA-----GYHCEAYNNPADFFLDIINGDSTAVA 306
                                                                                                                                                                                                                                                  242 KRGGQVIYSGKLGRNSQKOVEYFEALPGVPKIKDKY-----NPATWALEV---SSVAIE 292
                                                                                                                                                                                                                                                                                                                                                  -----AKYYETSDLYKQNKVLVNQLSQPEPGTSDLYF-P 332
                                                                                                                                                                                                                                                                                                                                                                                             423
                                                                                                                                                                                                                                                                                                                                                                                                                     333 TEYSQSTIGQFKACLWKQWLTYWRSPDYNLVRYSFTLLVALLLGSIFWRIGTNWEDATTL 392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         424 ONRAGVLF----FLTTWQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLL 479
                                                                                                                                                                                                                                                                                                           307 LNREEDFKATEIIEPSKQDKPLIEKLAEIYVNSSPYKETKAELHQLSGGEKKKKITVFKE 366
  200 LITDPSILFIDEPTTGLDSSTANAVLLLKRMSKQGRTIIPSIHQPRYSIFKLFDSLTLL
                                                                                                                                                                      145 ALRLATIMINHE----KNERINRVIQELGLDKVADSKVGTQFIRGVSGGERKRISIGME
                                                                                                                                                                                                                                                                                                                                                                                         367 ISYTTSFCHQLRMVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGL---KNDSTGI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       480 PMTMLPSIIFTCIVYFMLGLKPKADA----FFVMMFTLMMVAYSASSMALAIAAGQSVVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PYVEVOTTYYTLIVYAMMSFQWTAVKFFWFFFISYFSFLYFTY-YGMMAVSISPNH---E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VATLIMTICEVEMMIESGLIVNLTTIASWLSWLQYFSI----PRYGFTALQHNEFLGQN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Alien, Steve
APPLICANT: Rafalski, Antoni
APPLICANT: Rafalski, Antoni
APPLICANT: Miao, Gou-Hau
APPLICANT: Miao, Gou-Hau
APPLICANT: Famodu, Omolayo O.
APPLICANT: Famodu, Omolayo O.
APPLICANT: Sakai, Hajime
APPLICANT: Ramodu, Jan Ming
APPLICANT: Weng, Zude
APPLICANT: Weng, Zude
APPLICANT: Weng, Zude
APPLICANT: Weng, Zude
APPLICANT: Weng, Zude
APPLICANT: Weng, Zude
APPLICANT: Weng, Zude
APPLICANT: Weng, Zude
APPLICANT: Pelat Monage: US/09/614,912
CURRENT APPLICATION NUMBER: G0/143,401
PRIOR FILING DATE: 1999-07-12
PRIOR FILING DATE: 1999-07-12
PRIOR FILING DATE: 1999-07-12
PRIOR FILING DATE: 1999-12-15
PRIOR APPLICATION NUMBER: G0/146,650
PRIOR FILING DATE: 1999-12-15
PRIOR FILING DATE: 1999-12-15
PRIOR FILING DATE: 1999-12-21
PRIOR FILING DATE: 1999-12-21
PRIOR FILING DATE: 1999-12-21
PRIOR FILING DATE: 1999-12-21
PRIOR FILING DATE: 1999-12-21
PRIOR FILING DATE: 1999-12-21
PRIOR FILING DATE: 1999-12-21
PRIOR FILING DATE: 1999-12-21
PRIOR APPLICATION NUMBER: G0/17,946
PRIOR FILING DATE: 1999-12-21
PRIOR APPLICATION NUMBER: G0/17,946
PRIOR FILING DATE: 1999-12-21
PRIOR FILING DATE: 1999-12-21
PRIOR FILING DATE: 1999-12-21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 140, Application US/09614912
Patent No. 6677502
                                                                                                                                                                                                                                                                                                                                                    293 VRLKMDF-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       591 FCPG 594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SVPG 566
                       62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ð
                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                         ठे
                                                                                                                                                                                                                                                                                                                                                                                                                       요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                 ठे
                                                                                               셤
                                                                                                                                            \delta
                                                                                                                                                                           엄
                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
```

```
77 AILGPIGGGKSSLLDVLAARKDPSGLSGDVLINGA----
                                                                                                                 CURRENT FILING DATE: 2000-06-06

PRIOR APPLICATION NUMBER: US 60/209, 845

PRIOR APPLICATION NUMBER: US 60/209, 845

PRIOR APPLICATION NUMBER: US 60/20/21

PRIOR APPLICATION NUMBER: PCT/US01/18340

PRIOR APPLICATION NUMBER: BCT/US01/18340

PRIOR APPLICATION NUMBER: US 60/209, 257

PRIOR FILING DATE: 2001-06-05

PRIOR FILING DATE: 2000-06-05

PRIOR FILING DATE: 2000-06-05

PRIOR PILING DATE: 2000-06-05

PRIOR PILING DATE: 2000-06-05

PRIOR PILING DATE: 2000-06-05

PRIOR PILING DATE: 2000-06-05

PRIOR FILING DATE: 2000-06-05

PRIOR PILING DATE: 2000-06-05

PRIOR PILING DATE: 2000-06-05

PRIOR PILING DATE: 2000-06-15

PRIOR PILING DATE: 2000-08-12

PRIOR PILING DATE: 2000-08-12

PRIOR PILING DATE: 2000-08-12

PRIOR PILING DATE: 2000-08-12

PRIOR PILING DATE: 2000-08-12

PRIOR PILING DATE: 2000-08-12

PRIOR PILING DATE: 2000-08-12

PRIOR PILING DATE: 2000-08-12

PRIOR PILING DATE: 2000-08-12

PRIOR PILING DATE: 2000-08-12

PRIOR PILING DATE: 2000-08-12

PRIOR PILING DATE: 2000-08-12

PRIOR PILING DATE: 2000-08-12

PRIOR PILING DATE: 2000-08-12

PRIOR PILING DATE: 2000-08-12

PRIOR PILING DATE: 2000-08-12

PRIOR PILING DATE: 2000-08-12

PRIOR PILING DATE: 2000-08-12

PRIOR PILING DATE: 2000-08-12

PRIOR PILING DATE: 2000-08-12

PRIOR PILING DATE: 2000-08-12

PRIOR PILING DATE: 2000-08-13

PRIOR PILING DATE: 2000-08-13

PRIOR PILING DATE: 2000-08-13

PRIOR PILING DATE: 2000-08-13

PRIOR PILING DATE: 2000-08-13

PRIOR PILING DATE: 2000-08-13

PRIOR PILING DATE: 2000-08-13

PRIOR PILING DATE: 2000-08-13

PRIOR PILING DATE: 2000-08-13

PRIOR PILING DATE: 2000-08-13

PRIOR PILING DATE: 2000-08-13

PRIOR PILING DATE: 2000-08-13

PRIOR PILING DATE: 2000-08-13

PRIOR PILING DATE: 2000-08-13

PRIOR PILING DATE: 2000-08-13

PRIOR PILING DATE: 2000-08-13

PRIOR PILING DATE: 2000-08-13

PRIOR PILING DATE: 2000-08-13

PRIOR PILING DATE: 2000-08-13

PRIOR PILING DATE: 2000-08-13

PRIOR PILING DATE: 2000-08-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURE: OTHER INFORMATION: consensus sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         239 IFSIHQPRYSIFKLFDSLTLLASG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  216 IGIDFABUYRQSELYQRNKELIKELSMPAPGSSDLNF-PTQYSRSFVTQCLACLWKQXXX 274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      161 INRVIQELGLDKVADSKVGTQFIRGVSGGERKRTSIGMELITDPSILFLDEPTTGLDSST 220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    221 ANAVLLIKRMSKOGRTIIFSIHOPRYSIFKLFDSLTLL-ASGRIMFHGP----AQEALG 275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LGLKPKADAF----FVMMFTLMMVAYSASSMALAIAAGOSVVSVATLLMTICFVFMMIFS 552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                387 IGPEWTVAKFLMYLFFMYFTMLYFTF-YGMMAVGLTPNE---SIAAIISSAFYNVWNLFS 442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        102 LSGDVLINGAP-RPANFKCNSGYVVQDDVVMGTLTVRENLOFSAALRLATTMTNHEKNER 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  YFESA-----GYHCEAYNNPADFFLDIINGDSTAVALNREEDFKATEIIEPSKODKP 327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LIEKLARIYVNSSFYKETKARLHQLSGGEKKKKITVFKEISYTTSF---CHQLRWVSKRS 384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     385 FKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDSTGIQN------RAGVLFFLTTN 436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                437 QCPSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLLPMTMLPSIIFTCIVYFM 496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GYLIPRPKLPIWWRWYSWICPVAWTLYGLVASQFGDI-------OOPLDOGV-P 488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GLLV---NLTTIASWLSWLQYFSIPRYGFTALQHNEFLGQNFCPGLNATGNNPCNYATCT 609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4 IBGBITVSGYPKKQETFARISGYCEQNDIHSPHVTIYBSLVFSAMLRLPABVDSERRKMF 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | : | | : | : | | | GPQITVAQFVIDYRGFHHDFL-WVAMVHVAFTVLFAFLFSFAIMRFNFQKR 539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GERYLVKQGI -----DLSPWGLWKNHVALACMIVIFLTIAYLKLLFLKK 653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               96;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 539;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match.
13.8%; Score 461; DB 4; Length 53:
Best Local Similarity 25.0%; Pred. No. 7.5e-39; Indels
Matches 148; Conservative 107; Mismatches 241; Indels
PRIOR FILING DATE: 1999-07-12
PRIOR PEDICATION NUMBER: 60/146,650
PRIOR PEDICATION NUMBER: 60/170,906
PRIOR FILING DATE: 1999-12-15
PRIOR APPLICATION NUMBER: 60/172,959
PRIOR FILING DATE: 1999-12-21
PRIOR PILING DATE: 1999-12-21
PRIOR FILING DATE: 1999-12-21
PRIOR FILING DATE: 1999-12-21
NUMBER OF SEQ ID NOS: 204
SEQ ID NOS: 204
SEQ ID NO 144
SEQ ID NO 144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 6
US-10-162-012-36
Sequence 36, Application US/10162012
Patent No. 6682597
GENERAL INFORMATION:
APPLICANT: CURTIS, Rory A.J.
APPLICANT: Silos-Santiago, Inmaculada
APPLICANT: Gu, Wei
                                                                                                                                                                                                                                                                                                                                                                                                               TYPE: PRT ORGANISM: Triticum aestivum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ) NAME/KEY: UNSURE
) LOCATION: (272)..(273)
US-09-614-912-144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          489
```

8 8 ð g δ 셤 ò ద ò 셤 ઠે

吊 ò g à ď 8 g

```
128 DVVMGT--LTVRENLQFSAALRLATTMTNHEKNERINRVIQE------LGLDKVADSKV 178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   179 GTQFIRGVSGGERKRISIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSKQGRTI 238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       62
TITLE OF INVENTION: NOVEL HUMAN ION CHANNEL AND TRANSPORTER FAMILY MEMBERS FILE REPERENCE: 10448-190001
CURRENT APPLICATION NUMBER: US/10/162,012
CURRENT FILING DATE: 2002-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      63 PTLFPNVELTVRENIAF--GLRLSLGLSKDEQRARLKKAGABELLERLGLGYDHLLDRRP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      28; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 198;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
7.6%; Score 254; DB 4; Length 198
Best Local Similarity 32.8%; Pred. No. 5.2e-18;
Matches 67; Conservative 40; Mismatches 69; Indels
```

7;

```
465
                                                                                                                     62 CLDKPS--SGEYKVAGQCVADMESDQLAALRREHF----GFIFQRYHLMAHLTAEQNVEI 115
                                                                                                                                                                                                                       116 PA---IYAGKSTEQRKERARALLTRIGLAERIHYRPSQ-----LSGGQQQRVSIARALM 167
                                                                                                                                                                                                                                                                                       262
                                                                                                                                                                                                                                                                                                                   168 GGEVILADEPTGALDSQSGKEVMAILKQLNQQGHTVIIVTHDP--LIAQQADRIIEIKDG 225
                                                                                                                                                                                                                                                                                                                                                                                                                                  226 QIISDNNNHHSAPVKKVPPAIQTASYFHQVIĞRFTQALMMAWRAMVVNKIRTLLTMLGII 285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ------ADFFLDIINGDSTAVALNREEDFKATEIIEPSKQDK-PLIEKLAEIYV 337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               338 NSSFYKETKAELH---QLSGGEKKKKITV-------FKEIS-YTTSFCH---Q 376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                421 TGIQNRA-----TNOCFSSVSAVELFVVE 451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      452 KKLF----IHEYISGYYRVSSYFL-------GKLLSDLLPMTMLPSIIFT 490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     143 SAALRLATTWTNHEKNERINRVIQELGLDKVADSKVGTQFIRGVSGGERKRTSIGMELIT 202
                                           61
94
                            2 CRRVIMSALLELNNVSRLYTNGEEDTVVLDQISLTINAGEMVAIIGASGSGKSTLMNILG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            286 IGIASVVTIIVIGDAAKDRVLADIKAIGANTIDIYPGKELGSDSPEDKQSLTIQDVDALK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          95 ARKDPSGLSGDVLING-----APRPANFKCNSGYVVQDDVVMGTLTVRENLQF
                                                                                                                                                                                                                                                                                  203 DPSILFLDRPTTGLDSSTANAVLLLKRMSKQGRTIIFSIHQPRYSIFKLFDSLTLLASG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     466 SRIYNRSYLDNITVKVKEGYDASVAEQQILRLLTIRHGKKDIFTYNIDSFIKAAEKTTQT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LRWVSKRSFKNLLGNPQASIA-QIIVTVVLGLVIGAI----YFGLKND-----S
                                                                                                                                                                                                                                                                                                                                                                                   263 RLM----PHG----PAQEALGYFESA-GYHCEAYNNP--------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NOVEL HUMAN CHROMOSOME 16 GENES, COMPOSITIONS, METHODS OF MAKING AND USING SAME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |:| :||: :||: :| : | : || ||: CLVGGLLGI ---SLSFALAMFASAML.PNWHFVFQPTALISAFACSTAI 629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CIVYFMLGLKPKADAFFVMMFTLMMV----AYSASSMALAIAAGQSV 533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/665,259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Massachusetts
: United States of America
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Lindes, Gregory M. APPLICANT: Lindes, Gregory M. APPLICANT: Burn, Timothy C. APPLICANT: Connors, Timothy D. APPLICANT: Dackowski, William R. APPLICANT: Van Raay, Terence J. APPLICANT: Kinger, Katherine W. TITLE OF INVENTION: NOVEL HUMAN CHITLE OF INVENTION: CORRESPONDENCE ADDRESS: 73
CORRESPONDENCE ADDRESS: ADDRESSEE: GENZYME CORPORATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; Sequence 25, Application US/08665259 ; Patent No. 6028173
  CRKPVEKEI - - LSNINGIMKPG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            One Mountain Road
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STREET: One Mounta
CITY: Framingham
STATE: Massachuset
COUNTRY: United St
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     491
                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                 용
                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                         ò
                                                                                                                                셤
                                                                                                                                                                                   ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 5411, Application US/09543681A

Patent No. 6605709

GENERAL INFORMATION:

APPLICANT: GARY BERTON

TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO PROTEUS MIRABIL

TITLE OF INVENTION: NUCLEIC ACID AND THERAPEUTICS

FILE REFERENCE: 2709-1002-001

CURRENT FILING DATE: 2000-04-05

PRIOR APPLICATION NUMBER: US 60/128,706

PRIOR FILING DATE: 1999-04-09

NUMBER OF SEQ ID NOS: 8344

SEQ ID NO 5411

LENGTH: 653
                                                                                                                             GENERAL INCORMATION:
APPLICANT: Lynn Doucette-Stamm et al
TITLE OF INVENTION:
NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO STAPHYLOCOCCUS
TITLE OF INVENTION: EPIDERMIDIS FOR DIAGNOSTICS AND THERAPEUTICS
CURRENT APPLICATION NUMBER: US/09/134,001C
CURRENT APPLICATION NUMBER: US 60/064,964
PRIOR PILING DATE: 1997-08-13
PRIOR FILING DATE: 1997-08-14
NUMBER OF SEQ ID NOS: S674
LENGTH: 270
LENGTH: 270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       84 GGKSSLLDVLAARKDPSGLSGDVLING--APRPAN-----FKCNSGYVVQDDVVMGTLT 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         136 VRENLOFSAALRLATIMINHEKNERINRVIQELGLDKVADSKVGTQFIRGVSGGERKRTS 195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     196 IGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSKQ-GRTIIFSIHQPRYSIFKLFD 254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 171 AARAFINLPSIIFADEPTGALDSKSTLDLLKRLKYMNEEFNTTILMVTHDPVAASFS--N 228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          255 SLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPAD---FFLDIINGDSTAVALNRE 310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   42 ICYRVKL-----KSGFLPC------RKPVEKEILSNINGIMKPG-LNAILGPTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       7.2%; Score 240.5; DB 4; Length 653; ilarity 20.1%; Pred. No. 1e-15; Conservative 106; Mismatches 223; Indels 189.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 4; Length 270;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match

7.3%; Score 246; DB 4; Length 270
Best Local Similarity 27.1%; Pred. No. 6e-17;
Matches 81; Conservative 56; Mismatches 102; Indels
                                                                                       Sequence 5561, Application US/09134001C Patent No. 6380370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM: Staphylococcus epidermidis US-09-134-001C-5561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  229 RVVMLKDGQIF-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM: Proteus mirabilis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Local Similarity
Matches 130, Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-09-543-681A-5411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      \dot{\delta}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ਨੋ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ઠે
```

ò d 842 1 2

us-09-961-086-1.rai

```
590 LCPQHDILFDNLTVAEHLYFYAQLK---GLSRQKCPEEVKQMLHIIGLEDKWNSR---- 641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            123 YVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGTQF 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              183 IRGVSGGERKRISIGMELITDPSILFLDEPTIGLDSSTANAVLLLLKRMSKQGRTIIFSI 242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        243 HQPRYSIFK-----LFDSLTLLASGRLMFHGPA---QEALGYFESAGYHC----EAYNNP 290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           66 NINGIMKPGLNAILGPIGGGKSSLLDVLAARKDPSGLSGDVLING---APRPANFKCNSG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               533 NLN-LYEGQITVLLGHNGAGKTTTLSMLTGLFPPT--SGRAYISGYEISQDMVQIRKSLG
                                                                                                                                                                                                                                                                              APPLICANT: Landes, Gregory M.
APPLICANT: Burn, Timochy C.
APPLICANT: Connors, Timochy D.
APPLICANT: Dackowski, William R.
APPLICANT: Dackowski, William R.
APPLICANT: Klinger, Katherine W.
APPLICANT: Klinger, Katherine W.
APPLICANT: Klinger, Katherine W.
APPLICANT: Klinger, Katherine W.
APPLICANT: Klinger, Katherine W.
APPLICANT: Klinger, Katherine W.
APPLICANT: Klinger, Katherine W.
APPLICANT: Klinger, Katherine W.
APPLICANT: MANDER LUMAN CHROMOSOME 16 GENES,
TITLE OF INVENTION: COMPOSITIONS, METHODS OF MAKING AND USING SAME
CORRESPONDENCE ADDRESS:
ADDRESSEE: GENZYME CORPORATION
                                                          1303
        612 E-----YLVKQGIDLSPW---GLWKNHVALACMIVIFLTIAYLKLLFL 651
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 7.1%; Score 238.5; DB 3; Length 1684; Best Local Similarity 20.3%; Pred. No. 8e-15; Matches 169; Conservative 116; Mismatches 241; Indels 305;
                                            CURRENT APPLICATION DATA:
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/762,500
FILING DATE: 09-DEC-1996
CLASSIFICATION NUMBER: US/08/762,500
FILING APPLICATION NUMBER: US/08/762,500
FILING DATE: 17-UW-1996
PRIOR APPLICATION NUMBER: US/08/65,259
FILING DATE: 17-UW-1996
ATPONEY/AGENT INFORMATION:
NAME: DAGAN, DAGANATION:
NAME: DAGAN, DAGANATION:
REGISTRATION NUMBER: 37,315
REGISTRATION NUMBER: 37,315
REBRENCE/DOCKET NUMBER: 1G5-9.3
TELEPHONE: (508) 872-8400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STREET: One Mountain Road
CITY: Framingham
STATE: Massachusetts
COUNTRY: United States of America
ZIF: 01701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                               Sequence 25, Application US/08762500 Patent No. 6030806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TELEPHONE: (508) 872-8400
TELERAX: (508) 872-5415
INFORMATION FOR SEQ ID NO: 25:
SEQUENCE CHARACTERISTICS:
LENGTH: 1684 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MOLECULE TYPE: protein US-08-762-500-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TOPOLOGY:
                                                    엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ઠ
           ठ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1041 LFKLLCGPHASIVVSNFPQPRSALQAAKDQFNEGRKGFDIALNLLFAMAFLASTFSILAV 1100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  931 PDDPMLRLTLGEYGRTVVPFSVPGTSQLGQQLSEHLKDALQAEGQEPREVLGDLEEFLIF 990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           400 IVTVVLGLVIGAIYFGLKNDSTGIQ-----NRAGVLFFLTTNQCFS-----SVSAV 445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               505 AFFVMMFTLMMVAYSASSMALAIAAGQSVVSVATLLMTICFVFMMIFSGLLVNLTIASW 564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       H-----FMDEADLLGDRIAIMAKGELQCCGSSLFLKQKYG----AGYHMTLVKEPHCNP 750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              352 ---LSGGEKKKKITVFKEISYTTSFCHQLRWVSKRSFKNLLGNPQ------ASIAQI 399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     446 ELFVVEKKLFIH-EYISGYYRVSSYFLGKLISDLIPMTMLPSIIFTCIVYFMLGLKPKAD 504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         565 LSWLQYF----SIPRYGF----TALQHNEFLGQNFCPGLNATGNNPCNYAT---CTGE 611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          66 NINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLING---APRPANFKCNSG 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 123 YVVQDDVVMGTLITVRENLQPSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGTQF 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      590 LCPQHDILFDNLTVAEHLYFYAQLK---GLSRQKCPEEVKQMLHIGLEDKWNSR----- 641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           183 IRGVSGGERKRTSIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSKOGRTIIFSI 242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HOPRYSIFK----LFDSLTLLASGRLMFHGPA---QEALGYFESAGYHC----EAYNNP 290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         751 EDISQLVHHHVPNATLESSAGAELSFILPRESTHRFEGLFAKLEKKQKELGIASFGASIT 810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   811 TMEEVFLRVGKLVDSSMDIQAIQLPALQYQHERRASDWAVDSNLCGAMDPSDGIGALIEE 870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        301 DSTAVALN-----SKQ- 324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ----EKLAE----IYVNSSFYKETKAELHQ---- 351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     305;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 1684;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
7.1%; Score 238.5; DB 3; Lengtn 1
Best Local Similarity 20.3%; Pred. No. 8e-15;
Matches 169; Conservative 116; Mismatches 241; Indels
FILING DATE: 17-JUN-1996
CLASSIFICATION: 415
ATTORNEY/AGENT INFORMATION:
NAME: Dugan, Deborah A.
REGISTRATION NUMBER: 37,315
REFERENCE/DOCKET WINBER: 1G5-9.1
TELECOMMUNICATION INFORMATION:
TELEPHONE: (508) 872-5415
INFORMATION FOR SEQ ID NO: 25:
SEQUENCE CHARACTERISTICS:
LENTH: 1644 amino acids
                                                                                                                                                                                                                                                                                                                                                             ; TOPOLOGY: linear
; MOLECTULE TYPE: protein
US-08-665-259-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .--------- 297
                                                                                                                                                                                                                                                                                                                                         amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     325 -DKPLI---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    291 AD-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         701
```

셤 à d ò g ò 임 ઠે පු 8 셤 Š 셤 8 d

ò 쉱 ઠે

셤

8 8 à g à

CLASSIFICATION: 435 PRIOR APPLICATION DATA: APPLICATION NUMBER: US 08/665,259 FILING DATE: 17-JUN-1996 PRIOR APPLICATION DATA: APPLICATION NUMBER: PCT/US96/10469 FILING DATE: 17-JUN-1996 ATTORNEY/AGENT INFORMATION: NAME: Dugan, Debocarah A. REGISTRATION NUMBER: 37,315 REFERENCE/DOCKET NUMBER: 37,315 REFERENCE/DOCKET NUMBER: 37,315 REFERENCE/DOCKET NUMBER: 37,315 TELEPHONE: (508) 872-5415 INPORMATION FOR SEQ ID NO: 75: SEQUENCE CHARACTERISTICS: LENGTH: 1704 amino acids TURDEM: 1704 amino acids TOPPOLOGY: linear MOLECULE TYPE: protein US-08-762-500-75	Duery Match 7.1%; Score 238.5; DB 3; Length 1704; 8est Local Similarity 20.3%; Pred. No. 8.2e-15; Matches 169; Conservative 116; Mismatches 241; Indels 305; Gaps 3 66 NINGIMKPGINAILGPTGGGKSSLIDVIAARKDPSGLSGDVLINGAPRPANFKCNSG 12	QY 123 YVQDDVWGFLTTVRENLEGESALERATTWTHEREKINKT QCBLGLDKVADSKVGTQF 182	QY 243 HQPRYSIFKLPDSLTLLASGRIMFHGPAQBALGYESSAGYHCEAYNNP 290 Db 721 HFMDEADLAGDRIAIMAKGELQCGSSLFLKQKYGAGYHMTLVKEPHCNP 770 QY 291 AD	Qy 297	1011 RASUGGGENERCLVAASFRDVGERTYVNALENNQAYHSPATALAVUDNL 400 IVTVVLGLVIGAIYFGLKNDSTGIQNRAGVLFFLTTNQCFSSVSAV 1061 LFKLLCGPHASIVVSNFPQPRSALQAAKDQFNEGRKGFDIALNLLFAMAFLASTFSILAV 446 ELFVVEKKLFIH-EYISGYYRVSSYFLGKLLSDLLPMTMLPSIIFTCIVYFMLGLKFKAD 1121 SERAVQAKHVQFVSGVH-VASFWLSALLMDLISF-LIFSLLLLVVF
Db 701 HFMDEADLLGDRIAIMAKGELQCCGSSLFLKQKXGAGYHMTLVKEPHCNP 750 291 AD	OY 400 IVTVVLGLVIGAIYFGLKNDSTGIQNRAGVLFFLTTNQCFSSVSAV 445	OY 505 AFFUMMFILMMUAYSASSWALAIAAGGSVUSUATLLMTICFVFNMIFSGLLUNLTTIASW 564 Db 1146 AFDVRAFTRDGHWADTLLLLLYGWALIPLMYLMNFFFLGAATAYTRLTIFNI 1198 QY 565 LSWLQYFSIPRYGFTALQHNFFLGQNFCPGLNATGNNFCNYATCTGE 611 Db 1199 LSGTATFMWTTMRTPAVGTRFLSKTLDNYFILD	612 EYLVKOGIDLSPWGLWKXHVALACMIVIFLTIAYLKLIFL 651 1258 EVAAHYCKKYNIQYOENFYAWSAFGVGFFVASWAASGCAYLILLFL 1303 SULT 11	Sequence 75, Application US/08762500 Sequence 75, Application US/08762500 Patent No. 6030806 GENERAL INFORMATION: APPLICANT: Landes, Gregory M. APPLICANT: Durn, Timothy C. APPLICANT: Dackowski, William P. APPLICANT: Dackowski, William P. APPLICANT: Van Raay, Terence J. APPLICANT: Van Raay, Terence J. APPLICANT: Katherine W. APPLICANT: TITLE OF INVENTION: NOVEL HUMAN CHROMOSOME 16 GENES, TITLE OF INVENTION: COMPOSITIONS, METHODS OF MAKING AND USING SAME CORRESPONDENCE ADDRESS:	ADDRESSEE: GENZYME CORPORATION STRET: One Mountain Road CITY: Framingham STATE: Massachusetts COUNTRY: United States of America ZIP: 01701 COMPUTER READABLE FORM: MEDIUM TYPE: Floppy disk COMPUTER: Floppy disk COMPUTER: PatentIn Release #1.0, Version #1.30 CURRAIN APPLICATION NATA: CURRENT APPLICATION NATA: FILING BATE: 09-DEC-1996

셤 ઠે g

```
GENERAL INFORMATION:

APPLICANT: LYAIN DOUGETE-Stamm et al
APPLICANT: LYAIN DOUGETE ACID AND AMINO ACID SEQUENCES RELATING TO STAPHYLOCOCCUS
TITLE OF INVENTION: DELIBERMIDIS FOR DIAGNOSTICS AND THERAPEUTICS
FILE REFERENCE: GTC-007
CURRENT APPLICATION NUMBER: US/09/134,001C
CURRENT FILLING DATE: 1998-08-13
PRIOR APPLICATION NUMBER: US 60/064,964
PRIOR FILING DATE: 1997-11-08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     129 IELVGLEEKASA-----YPKOLSGGCKORVAIARALANEPKVLLCDEATSALDPKTTLQI 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    225 ILLLKRMSKQ-GRTIIFSIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYH 283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            284 CEAYNNP----ADFFLDIINGD---STAVALNREEDFKATE-IIEPS----KQDKFLIE 330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               111 ----APRPANFKCNS-GYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRV 164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   55 CRKPVEKEI--LSNIN-GIMKPGLNAILGPIGGKSSLLDVLAARKDPSGLSGDVLING-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 14 CHQYEKEIQAVDSVDLTIEKGDVYGIVGYSGAGKSTLVRVMNLLQKPT--AGEVIVNQT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     165 IQELGLDKVADSKVGTQFIRGVSGGERKRTSIGMELITDPSILFLDEPTTGLDSSTANAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              331 KLAE-----IYVNSSFYKETK--AELHQLSGGEKKKKITVFKEISY 369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    290 HLYSKYQVTANILYGNVELLQETPLGSLIVTLAGETKQRK----FALDY 334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 361;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 6.8%; Score 228; DB 4; Length 36: Best Local Similarity 24.1%; Pred. No. 7.4e-15; Matches 84; Conservative 86; Mismatches 117; Indels
NT APPLICATION DATA:
APPLICATION NUMBER: US/09/107,532A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME/KEY: misc feature
;
; SEQUENCE DESCRIPTION: SEQ ID NO: 6490:
US-09-107-532A-6490
                                                                                                                                                                                                                                                          NAME: Ariniello, Pamela Deneke
REGISTRATION WUMBER: 40,489
REFERENCE/DOCKET NUMBER: GTC-012
TELECOMMUNICATION: INFORMATION:
                                                  FILING DATE: 30-Jun-1998
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 60/085,598
FILING DATE: 14 May 1998
APPLICATION NUMBER: 60/051571
FILING DATE: July 2, 1997
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM: Enterococcus faecium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-134-001C-3641
, Sequence 3641, Application US/09134001C
; Patent No. 6380370
                                                                                                                                                                                                                                                                                                                                                                           TELEPHONE: (781)893-5007
TELEPA: (781)893-8277
INFORMATION FOR SEQ ID NO: 6490:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LENGTH: 361 amino acids
TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TOPOLOGY:
MOLECULE TYPE: protein
HYPOTHETICAL: YES
ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              . g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                               Sequence 4600, Application US/09134001C

Bequence 4600, Application US/09134001C

Betent No. 6380370

GRNERAL INFORMATION:

APPLICANT: LYAIN DOUGETE-Stamm et al

APPLICANT: LYAIN DOUGETE-Stamm et al

TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO STAPHYLOCOCCUS

TITLE OF INVENTION: DEIDERMIDIS FOR DIAGNOSTICS AND THERAPEUTICS

TITLE OF INVENTION: BPIDERMIDIS FOR DIAGNOSTICS AND THERAPEUTICS

CURRENT APPLICATION NUMBER: US/09/134,001C

CURRENT FILING DATE: 1998-08-13

PRIOR APPLICATION NUMBER: US 60/064,964

PRIOR FILING DATE: 1997-11-08

PRIOR FILING DATE: 1997-11-08

PRIOR FILING DATE: 1997-08-14

SEQ ID NOS: 5674

SEQ ID NOS: 5674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 6490, Application US/09107532A
Sequence 6490, Application US/09107532A
Patent No. 6583275
GENERAL INFORMATION:
GENERAL INFORMATION:
APPLICANT: Lynn A Doucette-Stamm and David Bush
TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO
TITLE OF INVENTION: BUTEROCOCCUS FAECIUM FOR DIAGNOSTICS AND THERAPEUTICS
                                                     1219 LSGIATFLMVTIMRIPAVKLEELSKTLDHVFLVLPNHCLGM-AVSSFYENYETRRYCTSS 1277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            84 NPRKQHLGFIPQDXSVLPTLTVKBNIMLPLSVQ---KFHKYEMEQNYKEVABALGI---- 136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           64 LSNIN-GIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGA-----PRPA 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             116 NF-KCNSGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVA 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       137 -YNLGNKYPSEISGGQQRTAAARAFVHKPTIIFADEPTGALDSKSAQDLLHRLEDMNKQ 195
LSWLOYF-----SIPRYGF----TALOHNEFLGONFCPGLNATGNNPCNYAT---CTGE 611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    26 LINIISPSVEKGEFVAVMGPSGSGKTTLLINVLSSIDTISG--GTVEVEGKEINKLSHKEVA
                                                                                                                                                           1278 EVAAHYCKKYNIQYQENFYAWSAPGVGRFVASMAAS-----GCAYLILLFL 1323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  20;
                                                                                                              E----YLVKQGIDLSPW---GLWKNHVALACMIVIFLTIAYLKLLFL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 6.9%; Score 232; DB 4; Length 250 Best Local Similarity 32.8%; Pred. No. 1.6e-15; Matches 63; Conservative 41; Mismatches 68; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NUMBER OF SEQUENCES: 7310
CORRESPONDENCE ADDRESS:
ADDRESSE: GENOME THERAPEUTICS CORPORATION
STREET: 100 Beaver Street
CITY: Waltham
STATE: Massachusetts
COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER REALDABLE FORM:
MEDIUM TYPE: CD/ROM ISO9660
COMPUTER: PC
OPERATING SYSTEM: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ; TYPE: PRT
; ORGANISM: Staphylococcus epidermidis
US-09-134-001C-4600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    235 -GRIIIFSIHQP 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FNSTIMMVTHDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 13
US-09-107-532A-6490
                                                                                                                                                                                                                                                             RESULT 12
US-09-134-001C-4600
                                                                                                              612
265
```

ద ð 셤 ठ 셤 ઠે Length 1302;

\$ 10 m

```
536 GIHTRIGNGGYTSLSGGQNQRICLARALVKKPALLLLDEPTAALDANSEGLIMDAVKSVA 595
                                                                                                                                                                                                                                                                                                                                                                                                              233 KOGRTIIFSIHOPRYSIFKLFDSLTLLASGRLMFHGPAQEAL----GYFESAGYHCEAYN 288
                                                                                                                                                                                                                                                                                                                                                                                                                                    289 NPADFFLDIINGDSTAVA---LNREEDFKA---TEIIEP--SKODKPLIEKLAEIYVNSS 340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ------LAASI 730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  460 ISGYYRVSSYFLGKLLSDLLPPMTMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMMVA-- 517
                                                                                                                                    122 ---GYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKV---- 173
                                                                                                                                                                                                                                                                                                                                      174 -ADSKVGTQFIRGVSGGERKRTSIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMS 232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                341 FYKETKABLHQLSGGEKKKKITVFKEISYTTSFCHQLRWVSKRSFKNLLGNPQASIAQII 400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          518 -YSASSMALAIAAGQSVVSVATL-LMTICFVFWMIFSG----LLVNLTTIASWLSWLQY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    571 FSIPRYGFTALQHNEFLGONFCPGLNATGNNPCNYATCTGEEYLVKQGIDLSFWGLWKNH
                                                                                                                                                                                                                                                                                      ------FRSRADLFSLLFFILALIALF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        401 VIVVLGLVIG-ALYFGLKNDSTGLONRAGVLFFLTTNOCFSSVSAVELFVVEKKLFIHEY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4 SNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVEKEI
                                                                                                                                                                                  LSNINGIMKPG-LNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCNS-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DADESSAEVSAATTSQVTPQKASKSEDSAASSDTETVPPQAKKEDKPA------
                                    Query Match
6.8%; Score 226.5; DB 1;
Best Local Similarity 20.4%; Pred. No. 9.2e-14;
Matches 139; Conservative 102; Mismatches 231;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        839 VAİ-----GTIFTVCVSITG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  completed: March 23, 2004, 18:32:19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              631 VALACMIVIFLTIAYLKLLFL 651
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VVLLAAVPVMITAGYVRLRVL 887
  US-08-232-537-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              652
                                                                                                                                                                                      64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Search cor
Job time
                                                                                                                                              셤
                                                                                                                                                                                      à
                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                  유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ਨੋ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Dp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61 KEILSNINGIMKPG-LNAILGPTGGGKSSLLDVLAARKDPSGL----SGDVLINGAPRPA 115
                                                                                                                                                                                                                                                                                                                      116 NFKCNS-----GYVVQ-------DDVVMGTLTVRENL--QFSAALRLATTMTNH 155
                                                                                                                                                                                                                                                                                                                                                        82 -FKGNKSSLKISYVSOKASAFNAGFPASVKEVVLSGLTKTKKLFORF-------NK 129
                                                                                                                                                                                                                                                                                                                                                                                              156 EKNERINRVIQELGLDKVADSKVGTQFIRGVSGGERKRTSIGMELITDPSILFLDEPTTG 215
                                                                                                                                                                                                                                                                                                                                                                                                                    LDSSTANAVLLLLKRMSKQGRTIIFSIHQPRYSIFKLFDSLTLLA--SGRLMFHGPAQ-- 271
                                                                                                                                                                                                                                                                  63;
                                                                                                                                                                      Length 273;
                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 2, Application US/08232537
Patent No. 5516655
GENERAL INFORMATION:
APPLICANT: Peery, Robert B.
APPLICANT: Skatud, Paul L.
TITLE OF INVENTION: MULTIPLE DRUG RESISTANCE GENE (TITLE OF INVENTION: AREOBASIDIUM PULLULANS NUMBER OF SEQUENCES: 4
CORRESPONDENCE ADDRESS:
ADDRESSEE: Eli Lilly and Company
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ZIP: 46285

COMPUTER READMBLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DCS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/232,537
                                                                                                                                                                    Query Match 6.8%; Score 227.5; DB 4; Best Local Similarity 29.0%; Pred. No. 5.2e-15; Matches 76; Conservative 45; Mismatches 78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .....KESSEE: Eli Lilly and Company STREET: Lilly Corporate Center CITY: Indianapolis STATE: Indiana COUNTRY: USA
PRIOR APPLICATION NUMBER: US 60/055,779
PRIOR FLING DATE: 1997-08-14
NUMBER OF SED ID NOS: 5674
SEQ ID NO 3641
LENGTH: 273
TYPE: PRT
TYPE: PRT
ORGANISM: Staphylococcus epidermidis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KSLDEVEIS----KIYGHPIOF 258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EALGYFESAGYHCEAYNNPADF 293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           35,784
R: X9212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CLASSIFICATION: 435
ATTORNEY, AGENT INFORMATION:
NAME: Plant, Thomas G.
REGISTRATION NUMBER: 35,784
REFERENCE/FOCKET NUMBER: X921
TELECOMMUNICATION INFORMATION:
TELEPHONE: 317-276-2449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   INFORMATION FOR SEQ ID NO: 2: SEQUENCE CHARACTERISTICS: LENGTH: 1302 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
                                                                                                                                US-09-134-001C-3641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 15
US-08-232-537-2
                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                              ठ
                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                            ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
```

757

459

570

630

----GIILAHVVAWKIA 866

.

Aag43100 Arabidops Aag43099 Arabidops Human, ABCG2; transporter protein; anticancer drug tolerance; indocarbazole; mutant; mutein. /note= "Wild type Arg substituted by Thr" ALIGNMENTS AAG43100 AAG43099 Location/Qualifiers AAU80029 standard; protein; 655 AA. #5-JUL-2002 (first entry) Human ABCG2 mutant 482T 649 22.3 Misc-difference Homo sapiens Synthetic 746 AAU80029 RESULT 1 AAU80029 March 23, 2004, 18:23:18 ; Search time 60 Seconds (without alignments) 3084.477 Million cell updates/sec Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed and is derived by analysis of the total score distribution. 1 MSSSNVEVFIPVSQGNTNGF......MIVIFLTIAYLKLLFLKKYS 655 1586107 GenCore version 5.1.6 Copyright (c) 1993 - 2004 Compugen Ltd. Total number of hits satisfying chosen parameters: 1586107 segs, 282547505 residues SUMMARIES Minimum Match 0% Maximum Match 100% Listing first 45 summaries - protein search, using sw model BLOSUM62 Gapop 10.0 , Gapext 0.5 genescip1980s: genescip1980s: genescip2000s: genescip2001s: genescip2003s: genescip2003as: A_Geneseq_29Jan04:* geneseqp2004s:* seq length: 0 seq length: 200000000 US-09-961-086-1 3352

Post-processing:

Database

Minimum DB Maximum DB

score:

Seguence:

OM protein

Run on:

Scoring table:

Searched:

Aau80029 Human ABC
Aay5212 Breast Ca
Aab60104 Human tra
Aao14781 Human ABC
Abrs8077 Human ABC
Ada10917 Human CDN
Adc54182 Human BCR
Abb07273 Human BCR
Aay95355 ATP-bindi
Aau04348 Human BCR Homo sapi Human BCR Human mit Human BCR Human pol Murine BC Human pro Drosophil 860 Arabidops Human Aay15221 BAb60104 HAb60104 HAb60108 HAb0020 HAb0010917 HAb0010917 HAb0010917 HAb0010917 HAb0010917 HAb6010917 HAb6010917 HAb6010917 HAb6010917 HAb6010917 HAb6010917 HAb6010917 HAb6010917 HAb601091 HAb601091 HAb601091 HA Aaw73627 B Abb61858 B Abb07272 N Aab93564 B Abb59384 B Ab78981 Aag18080 Aag18079 Aag18079 Aag18078 Aag ADA10917 ADC54182 AAO14783 ABB07273 AAY95365 AAU04348 AAU80028 ABR58077 ABB07270 B Length Query 3331 3331 3053.5 3053.5 2757 783.5 783.5 783.5

The invention relates to an ABCG2 gene encoding a transporter protein capable of imparting tolerance to an anticancer agent in mammals comprising a fully defined sequence as given in the specification or an amino acid sequence basedon the sequence but with some amino acids substituted, deleted or added. The gene and encoded protein are useful in screening inhibitors and anticancer agents for administration in chemotherapy with enhancement in sensitivity of cancer cell tolerance.

Arabidops

ABCG2 gene encoding transporter protein capable of selectively transporting indocarbazole compounds, useful in screening inhibitors and anticancer agents for administration in chemotherapy.

Disclosure; Page 87-90; 98pp; Japanese.

Kotani H, Nakagawa R;

Komatani H, Hara Y, 2002-352228/38.

WPI; 2002-35228 N-PSDB; ABK49911

18-SEP-2001; 2001WO-JP008112. 03-OCT-2000; 2000JP-00303441 (BANY) BANYU PHARM CO LID

WO200228894-A1

Result

11-APR-2002

		Arabi		Humar	Нопо	_	Humar	Humar		Amino	6 Human	271 Human p53	Human	Amino	985 Mouse ABC	Mouse	9 Mouse	2 Mouse	
	Abb59544	Aag50555	Abb57	Aae2896	Abp52	Abb98349	Aae28964	Abb98348	Abo0727	Abb99694	Aa014186	Abo0727	Abb82647	Abb99696	Aau9698	Aae13308	Aae1328	Aae3170	
	ABB59544	AAG50555	ABB57112	AAE28968	ABP52126	ABB98349	AAE28964	ABB98348	ABC07272	ABB99694	AA014186	AB007271	ABB82647	ABB99696	AAU96985	AAE13308	AAE13289	AAE31702	
)	4	ო	Ŋ	ß	Ŋ	Ŋ	ហ	'n	v	9	ហ	9	9	9	S	Ŋ	ß	9	
ו ו	832	616	999	646	674	638	646	646	627	646	646	662	663	646	652	652	652	652	
	21.7	21.5	21.3	21.2	21.2	21.2	21.2	21.2	21.1	21.1	21.1	21.1	21.0	20.9	20.7	20.7	20.7	20.7	
7	727	720	714.5	711	710.5	710	710	710	708	708	707	706.5	702.5	700	694.5	693.5	693.5	693.5	
,	28	50	30	31	32	33	34	35	36	37	80	33	40	41	4	43	44	45	

221. .236 /note= "Phosphopantetheine site" 345. .347 /note= "Glycosylation site on N"

Modified-site

Region

"Walker A motif"

17. .95 'note= "

Key Domain Domain

location/Qualifiers

"N uo

Bite

25. .427 note= "Glycosylation note= "Transmembrane

Modified-site

405. .422 /label= TM1

546. .563 /label= TM2

Modified-site Modified-site

Region

region"

ž "N no

0 U

564. .566 /note= "Glycosylation site 604. .606 /note= "Glycosylation site

638. .655 /label= TM3

Region

```
ö
                                                                                                                                                                                                                                                                                                                      180
                                                                                                                                                                                                                                                                                                                                                    240
                                                                                                                                                                                                                                                                                                                                                                                 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MTMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGQSVVSVATLL 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    900
                                                                                                                                                                                                                                   120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DSTAVALNREEDFKATEIIEPSKQDKPLIEKLAEIYVNSSFYKETKAELHQLSGGEKKKK 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ITVFKEISYTTSFCHQLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDS 420
                                                                                                                                                                                                                                                              KEILSNINGIMKPGLNAILGPIGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN 120
                                                                                                                                                                                                                                                                                           SGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGT 180
                                                                                                                                                                                                                                                                                                                                                                                                                                        241 SIHQPRYSIFKLFDSLTLLASGRIMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING 300
The gene relating to drug tolerance can be modified e.g. with the transporter inhibitors, screened compounds, antibodies and antisense nucleotides. The transporter is capable of selectively transporting indocarbazole compounds extracellularly. The present sequence represents the amino acid sequence of human ABCG2 mutant 482T
                                                                                                                                                                           9
                                                                                                                                                                                                      9
                                                                                                                                                                                                                                                                                                                                                                        QPIRGVSGGERKRISIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSKQGRTIIF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MTICFVFMMIFSGLLVNLTTIASWLQYFSIPRYGFTALQHNEFLGQNFCPGLNATGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            541 MIICFVFMMIFSGLLVNLTIIASWLSWLQYFSIPRYGFTALQHNEFIGQNFCPGLNAIGN
                                                                                                                                                                                               1 MSSSNVBVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE
                                                                                                                                                                                                                                                                                                              QFIRGVSGGERKRISIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSKQGRIIIF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGIQNRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLLP
                                                                                                                                                                                                                                   KEILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN
                                                                                                                                                                                                                                                                                                                                                                                                             SIHOPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING
                                                                                                                                                                          1 MSSSNVEVFIPVSQGNTNGPPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 655
                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NPCNYATCTGESYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKLFLKKYS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NPCNYATCTGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKLLFLKKYS
                                                                                                                                             ô
                                                                                                                 Length 655;
                                                                                                                                             Indels
                                                                                                                 DB 5;
                                                                                                                                            .
0
                                                                                                                100.0%; Score 3352;
100.0%; Pred. No. 0;
ive 0; Mismatches
                                                                                                                               Best Local Similarity 100.
Matches 655; Conservative
                                                                                       Sequence 655 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         541
                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                 61
                                                                                                                                                                                                                                                                                               121
                                                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                                       181
                                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                               241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 481
                                                                                                                 Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
    000000x8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                             ò
                                                                                                                                                                                                      유
                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                           ద
                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                    ద
                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                           d
                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                   ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 The Breast Cancer Resistance Protein (BCRP) is an ATP-binding cassette (ABC) transporter protein. It has a molecular mass of approximately 72.3 kilodaltons (kD) exclusive of any glycosylation. Expression of BCRP in drug sensitive human cancer, and reduces resistance to mitoxantrone, doxorubicin, and daunorubicin, and reduces daunorubicin accumulation in the cloned transfected cells. The protein is useful for producing antibodies and antisense probes, which can be used to inhibit the activity of BCRP, therefore enhancing a cancer patient's chemotherapy treatment. The antibodies and probes overcomes the problems of breast cancer resistance proteins to make chemotherapy treatment more effective
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OFIRGVSGGERKRISIGMELITDPSILFLDEPTIGLDSSTANAVLLLIKRMSKQGRTIIF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QFIRGVSGGERKRISIGMELIIDPSILFLDEPTIGLDSSTANAVLLLLKRMSKQGRIIF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9 MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCKKVVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KEILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEXNERINRVIQELGLDKVADSKVGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 663;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          100.0%; Score 3352;
100.0%; Pred. No. 0;
iive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Claim 4; Fig 2a; 80pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 663 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Simi
Matches 655;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       181
셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           연
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
```

v breast cancer resistance protein useful for production of antibodies inhibit resistance activity for enhancing chemotherapy treatment.

(UYMA-) UNIV MARYLAND BALTIMORE

Doyle LA, 1999-494273/41

Ross DD,

WPI; 1999-494273/ N-PSDB; AAZ06360.

New

98US-0073763P

05-FEB-1999; 05-FEB-1998;

WO9940110-A1 12-AUG-1999

> breast cancer; drug resistance; ATP-binding cassette; ABC; xenobiotic transporter; chemotherapy; mitoxantrone; doxorubicin; breast cancer resistance protein; BCRP. Breast Cancer Resistance Protein (BCRP) Ź AAY15221 standard; protein; 663 (first entry) 09-NOV-1999 RESULT

sapiens

Homo

ö

Gaps

.. 0

120 120 180 180

9 9

us-09-961-086-1.rag

```
the diagnosis and treatment of transport, metabolic, neurological, reproductive, cardiovascular and immune disorders, and cell proliferative disorders such as cancer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 181 QFIRGVSGGERKRISIGMELITDPSILFLDEPTIGLDSSTANAVLLLKRMSKQGRIIIF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DSTAVALNREEDFKATEIIEPSKODKPLIEKLAEIYVNSSFYKETKAELHQLSGGEKKKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DSTAVALNREEDFKATEIIEPSKODKPLIEKLAEIYVNSSFYKETKAELHQLSGGEKKKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ITVPKEISYTTSFCHOLRWVSKRSFKNLLGNPOASIAQIIVTVVLGLVIGAIVFGLKNDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGIQNRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MTICFVFMMI FSGLLVNLTTIASWLSWLQYFSIPRYGFTALQHNEFLGQNFCPGLNATGN
                                                                                                                                                                                             1 MSSSNVEVPIPVSQGNTNGPPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE
                                                                                                                                                                                                                        1 MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCKKPVE
                                                                                                                                                                                                                                                                            KEILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN
                                                                                                                                                                                                                                                                                                      SGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGT
                                                                                                                                                                                                                                                                                                                                                                                 QFIRGVSGGERKRISIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSKQGRTIIF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGIONRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MIMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGOSVVSVATLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEMLESIIFTCIVYFMIGLKFKADAFFVMMFTLMMVAXSASSMALAIAAGQSVVSVATLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               541 MTICEVEMMIFSGLLVNLTTIASWLSWLQYFSIPRYGFTALQHNEFLGQNFCPGLNATGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NPCNYATCIGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKLLFLKKYS 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4; Length 655;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               region; cancer.
                                                                                                                                                           Indels
                                                                                                                                                         1;
                                                                                                                     g
                                                                                                                     Score 3346; D
Pred. No. 0;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               membrane penetrating
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AA014781 standard; protein; 655
                                                                                                                   Query Match
Best Local Similarity 99.8%;
Matches 654; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Human; BCRP protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Human BCRP protein
                                                                                 Sequence 655 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JP2002065277-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   28-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                05-MAR-2002.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AA014781;
                                                                                                                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                                                                                                                                  121
                                                                                                                                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAO14781
11D AAO1
12D AAO1
2 AC AAO1
2 B-1
2 B-1
2 B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
3 C B-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
      88888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          쉽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                d
                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                     д
                                                                                                                                                                                                                                                                                                                                                                                                                           ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        \delta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ઠે
                                                                                                                                                                                                                                                                          ઠે
                                                                                                                                                                                                                                                                                                                                                      ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                   8
                                                                                                                                          368
                                                                                                                                                                                420
                                                                                                    360
                                                                                                                                                                                                                        428
                                                                                                                                                                                                                                                              480
                                                                                                                                                                                                                                                                                                   488
                                                                                                                                                                                                                                                                                                                                         540
                                                                                                                                                                                                                                                                                                                                                                               548
                                                                                                                                                                                                                                                                                                                                                                                                                       600
                                                                                                                                                                                                                                                                                                                                                                                                                                                           608
                         300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Isolated polypeptide with a human transport protein sequence is useful for the diagnosis, prevention and treatment of disorders associated with the immune, reproductive and cardiovascular systems.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  The present invention provides the protein and coding sequences for 43\, nóvel humæn transport proteins (designated TPPTs). These can be used in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Human; transport protein; TPPT; transport disorder; metabolic disorder;
neurological disorder; cardiovascular disorder; reproductive disorder;
immune disorder; cancer.
                                                        SIHQPRYSIPKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING
                                                                                                                              DSTAVALNREEDFKATEIIEPSKQDKPLIEKLABIYVNSSFYKETKAELHQLSGGEKKKK
                                                                                                                                                                                                                                                                                                                                                                MTMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMMVAXSASSMALAIAAGQSVVSVATLL
                         SIHOPRYSIFKLFDSLTLLASGRLMFHGPAQBALGYFESAGYHCEAYNNPADFFLDIING
                                                                                                                                                                                ITVFKEISYTTSFCHQLRWSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDS
                                                                                                                                                                                                     TGIONRAGVLFFLTINQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLLP
                                                                                                                                                                                                                                                                                             TGIQNRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLLP
                                                                                                                                                                                                                                                                                                                                         MIMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGQSVVSVATLL
                                                                                                                                                                                                                                                                                                                                                                                                                       MIICEVEMMIFSGLLVNLTTIASWLSWLQYFSIPRYGFTALQHNEFLGQNFCPGLNATGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                MICFVFMMIFSGLLVNLTIASWLSWLQYFSIPRYGFTALQHNEFLGQNFCPGLNATGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NPCNYATCTGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKGLFLKKYS 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Burford
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ၀ဲပဲ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Hillman JL, Tang YT, Bandman
Lu DAM, Au-Young J, Patterson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Claim 2; Page 126-127; 165pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ā
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Human transport protein TPPT-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     99US-0139923P.
99US-0148177P.
99US-0149357P.
99US-0162287P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               16-JUN-2000; 2000WO-US016668
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAB60104 standard, protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (INCY-) INCYTE GENOMICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Yang J, Yue H,
R, Azimzai Y,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI; 2001-041424/05.
N-PSDB; AAF27724.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WO200078953-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          10-AUG-1999;
18-AUG-1999;
28-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       17-JUN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Lal P, Yang
Baughn MR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     28-MAR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            28-DEC-2000
                                                               249
                                                                                                                                          309
                                                                                                                                                                                                                                                                                                                                                                               489
                                                                                                                                                                                                                                                                                                                                                                                                                       541
                                                                                                                                                                                                                                                                                                                                                                                                                                                             549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   601
                                                                                                    301
                                                                                                                                                                                  361
                                                                                                                                                                                                                        369
                                                                                                                                                                                                                                                            421
                                                                                                                                                                                                                                                                                                   429
                                                                                                                                                                                                                                                                                                                                         481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAB60104;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      원
                                                                                                    ઠે
                                                                                                                                      g
                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                         ò
                                                                                                                                                                                ઠે
                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                         ð
                                                                                                                                                                                                                                                                                                                                                                                                                     ઠે
```

360

300

300

240 240 420

420 480 480 540 540 900 900

360

```
15-JUL-2002
       AAU80028;
                                                                                               Ношо
셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ठ
                                                                                                                        The invention comprises a mutant human BCRP protein, having a deletion, replacement or addition of at least one amino acid in the fifth membrane pentrating region of the wild-type BCRP protein. The mutant BCRP protein can be used for the treatment of cancer. The present amino acid sequence represents a human BCRP protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                481 MRMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMWVAYSASSWALAIAAGQSVVSVATLL 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            600
                                                                                                                                                                                                                                                                                                                           180
                                                                                                                                                                                                                                                                                                                                              180
                                                                                                                                                                                                                                                                                                                                                                  240
                                                                                                                                                                                                                                                                                                                                                                                     240
                                                                                                                                                                                                                                                                                                                                                                                                       300
                                                                                                                                                                                                                                                                                                                                                                                                                     SIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCBAYNNPADFFLDIING 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                           421 TGIQNRAGVLPFLITINQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLLP 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MIMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGQSVVSVATLL 540
                                                                                                                                                                                                                                                                                    120
                                                                                                                                                                                                                                                                                                        120
                                                                                                                                                                                                                                                                                                                                                                                                                                                DSTAVALNREEDFKATELIEPSKQDKPLIEKLAELYVNSSFYKETKAELHQLSGGEKKKK 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ITVFKEISYTTSFCHOLRWVSKRSFXNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDS 420
                                                                                                                                                                                                                                                                9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MII CEVEMMI FSGLLVNLTTIASWLSWLOYFSI PRYGFTALOHNEFLGONFCPGLNATGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      541 MICEVEMMIFSGLLVNLTIASWLSWLQYFSIPRYGFTALQHNEFLGQNFCPGLNATGN
                                                                                                                                                                                                                                                        SGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGT
                                                                                                                                                                                                                                                                                                                                                                                QFIRGVSGGERKRTSIGMELITDPSILFLDEPTTGLDSSTANAVLLLKRMSKQGRTIIF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGIQNRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLLP
                                                                                                                                                                                                                                                                                     KEILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN
                                                                                                                                                                                                                                                                                                                            SGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGT
                                                                                                                                                                                                                                                                                                                                                                  QFIRGVSGGERKRISIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSKQGRTIIF
                                                                                                                                                                                                                                                                                                                                                                                                        SIHQPRYSIPKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING
                                                                                                                                                                                                                                               1 MSSSNVEVFIPVSQGNTNGPPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE
                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NPCNYATCTGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKLLFLKKYS
                                                                                                                                                                                                                            ö
                                                                                                                                                                                                        DB 5; Length 655;
                                                                                                                                                                                                                           1; Indels
                                                                                    Mutant BCRP protein useful for treatment of cancer
                                                                                                                                                                                                       99.8%; Score 3346; Dilarity 99.8%; Pred. No. 0; Conservative 0; Mismatches
                                                                                                        Claim 13; Page 7-8; 15pp; Japanese
                    31-AUG-2000; 2000JP-00263742
                                      (GANK-) ZH GAN KENKYUKAI
                                                          WPI; 2002-324198/36.
                                                                                                                                                                                                                   Similarity
                                                                   N-PSDB; AAL42412.
                                                                                                                                                                                       Sequence 655 AA;
                                                                                                                                                                                                                 Best Local Simi
Matches 654;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  601
                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                        19
                                                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                         241
                                                                                                                                                                                                                                                                                                                                                                                                                              241
                                                                                                                                                                                                                                                                                                                                                                                                                                                 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    481
                                                                                                                                                                                                                                                                                                                                               121
                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                             121
                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
 g
                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                     ð
                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                             БÞ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ठ
                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                  ò
```

```
The invention relates to an ABCG2 gene encoding a transporter protein capable of imparting tolerance to an anticancer agent in mammals comprising a fully defined sequence as given in the specification or an amino acid sequence based on the sequence but with some amino acids substituted, deleted or added. The gene and encoded protein are useful in screening inhibitors and anticancer agents for administration in chemotherapy with enhancement in sensitivity of cancer cell tolerance. The gene relating to drug tolerance can be modified e.g. with the nucleotides. The transporter inhibitors, screened compounds, antibodies and antisense nucleotides. The transporter is capable of selectively transporting indocarbazole compounds extracellularly. The present sequence represents the amino acid sequence of human ABCG2 protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SIHQPRYSIPKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DSTAVALNREEDFKATEIIEPSKQDKPLIEKLAEIYVNSSFYKETKAELHQLSGGEKKKK 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             181 QFIRGVSGGERKRTSIGMELITDPSILFLDEPTTGLDSSTANAVLLLKRMSKQGRTIIF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 MSSSNVEVFIPVSQGNTNGFPATASNDLXAFTBGAVLSFHNICYRVKLKSGFLPCRKPVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KEILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    121 SGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OPIRGVSGGERKRISIGMELITDPSILFLDEPITGLDSSTANAVLLLLKRMSKQGRIIIF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ABCG2 gene encoding transporter protein capable of selectively transporting indocarbazole compounds, useful in screening inhibitors anticancer agents for administration in chemotherapy.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 99.8%; Score 3346; DB 5; Length 655; Best Local Similarity 99.8%; Pred. No. 0; Matches 654; Conservative 0; Mismatches 1; Indels
                                                                                                   transporter protein; anticancer drug
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   p,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Nakagawa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Claim 1; Page 71-76; 98pp; Japanese
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      H
                                                                                                                                                                                                                                                                                                                                    2001WO-JP008112.
                                                                                                                                                                                                                                                                                                                                                                                      03-OCT-2000; 2000JP-00303441.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Kotani
     entry
                                                                                                                                                                                                                                                                                                                                                                                                                                       (BANY ) BANYU PHARM CO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hara Y,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI; 2002-352228/38.
N-PSDB; ABK49901.
(first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 655 AA;
                                                                                                                                                                                                                                 WO200228894-A1
                                                                                                     Human; ABCG2;
indocarbazole
                                                                                                                                                                                sapiens.
                                                                                                                                                                                                                                                                                                                                  18-SEP-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Komatani H,
                                                                                                                                                                                                                                                                                   11-APR-2002
                                                    Human ABCG2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ठे
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
```

ö

Ź

RESULT 5 AAU80028 ID AAU80028 standard; protein; 655

Barry Barry

us-09-961-086-1.rag

```
RESULT 7
ADA10917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SXS
                                                                                                                                        g
                                                                                                                                                                                g
                                                                                                                                                                                                                          ď
                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                 d
                                                                                                                                                                                                                                                                                       ð
                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                               ઠ
                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                유
                                                                                                                                                                                                                                                                                                                                                                                                                                                        ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                g
                                                                                                                      ઠ
                                                                                                                                                               ਨੇ
                                                                                                                                                                                                      8
                                                                                ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Treating a patient with diabetes mellitus by isolating a nestin- or ABCG2 -positive pancreatic stem cell from a pancreatic islet of a donor and transferring the stem cell into the patient.
           360
                                                                                                                                                      900
                              420
                                                 420
                                                                      480
                                                                                         480
                                                                                                              540
                                                                                                                                 540
                                                                                                                                                                          900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    The invention relates to a method of treating a patient with diabetes mellitus by isolating a nestin- or ABCG2-positive pancreatic stem cell from a pancreatic islet of a donor, and transferring the stem cell into the patient whereby the stem cell differentiates into an insulin-producing cell. Alternatively, the nestin- or ABCG2-positive stem is induced into a pancreatic progenitor cell prior to isolation and transfer. This sequence corresponds to the human ABCG2 protein and the encoding gene is detected in the method of the invention. The method is useful for preparing a pharmaceutical composition for treating diabetes méllitus. The stem cells can be further characterised for correct gene
MEMLESIIFTCIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGQSVVSVATLL
                                                                                                                                                      MIICEVEMMIESGLLVNLTIIASWLSWLQYFSIPRYGFTALQHNEFLGQNFCPGLNAIGN
                                                                                                                                                                    MICEVERMIFSGLLVNLTIASWLSWLQYFSIPRYGFTALQHNFFLGQNFCPGLNATGN
                              ITVFKEISYTTSFCHOLRWYSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDS
                                         TGIQNRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLLP
                                                                                                              MIML PSIIFICIVY FMLGLK PKADAFFVMMFTLMMVAYSASSMALAIAAGQSVVSVATLL
                                                                                                                                                                                             NPCNYATCTGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKLIFLKKKS 655
                                                                                                                                                                                                          Ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Vallejo
                                                                                                                                                                                                                                                                                                                                                      ABCG2; antidiabetic; cell therapy; diabetes mellitus;
pancreatic stem cell; islets of langerhans; insulin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Abraham EJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ä,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Disclosure, Fig 18B; 107pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 H, Thomas
Lechner A;
                                                                                                                                                                                                                                                                     standard; protein; 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  26-SEP-2001; 2001US-00963875.
11-APR-2002; 2002US-00120687.
02-MAY-2002; 2002US-00136891.
                                                                                                                                                                                                                                                                                                                                                                                                                                                26-SEP-2002; 2002WO-US030700
                                                                                                                                                                                                                                                                                                            (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (GEHO ) GEN HOSPITAĹ CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Zulewski
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Nolan AL,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 2003-354625/33.
N-PSDB; ACCB0605.
                                                                                                                                                                                                                                                                                                                                 protein.
                                                                                                                                                                                                                                                                                                                                                                                                        WO2003026584-A2
                                                                                                                                                                                                                                                                                                                                                                                    Homo sapiens
                                                                                                                                                                                                                                                                                                              15-OCT-2003
                                                                                                                                                                                                                                                                                                                                  Human ABCG2
                                                                                                                                                                                                                                                                                                                                                                                                                             03-APR-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ŗ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                          421
                                                                                                                                 481
                                                                                                                                                       541
                                                                                                                                                                          541
                                                                                                                                                                                              601
                                                                                                                                                                                                                   601
                                                                                                                                                                                                                                                                      ABR58077
                                                                                                                                                                                                                                                                                           ABR58077;
            301
                              361
                                                   361
                                                                      421
                                                                                                               481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Habener
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Leech
                                                                                                                                                                                                                                                  RESULT 6
                                                                                                                                                                                                                                                             ABR5807
                                                                                                                                                                                                                                                                      셤
                                                                      à
                                                                                         g
                                                                                                               à
                                                                                                                               요
                                                                                                                                                      ઠે
                                                                                                                                                                          a
                                                                                                                                                                                              ò
                                                                                                                                                                                                                 셤
                              ठ
```

```
ô
                                                                                                                                                                                                                                                                                                                                                                            OFIRGVSGGERKRISIGMELITDPSILFLDEPTIGLDSSTANAVLLLLKRMSKOGRIIIF 240
                                                                                                                                                                                                                                                                                                                                                                                                                     240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                600
                                                                                                                                                                                                                                                                                                                                          180
                                                                                                                                                                                                                                                                                                                                                                                                                                                         SIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SIHQPRYSIFKLFDSLTLLASGRIMFHGPAQBALGYFESAGYHCBAYNNPADFFLDIING 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MIICEVEMMIFSGLLVNLTIIASWLSWLOYFSIPRYGFTALQHNEFLGONFCPGLNAIGN 600
                                                                                                                                                                                                                            120
                                                                                                                                                                                                                                                       61 KEILSNINGIMKPGLMAILGPIGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN 120
                                                                                                                                                                                                                                                                                                     180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DSTAVALNRBEDFKATEIIEPSKODKPLIEKLAEIYVNSSFYKETKAELHOLSGGEKKKK 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             480
                                                                                                                                                     9
                                                                                                                                                                                      9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DSTAVALNREEDFKATEIIEPSKODKPLIEKLAEIYVNSSFYKETKAELHQLSGGEKKKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       541 MIICFVFWMIFSGLLVNITTIASWLSWLQYFSIFRYGFTALQHNEFLGQNFCPGLNATGN
                                                                                                                                                                                                                                                                                                                                  121 SGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGT
                                                                                                                                                                                                                                                                                                                                                                                                     | TGIQNRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEVISGYYRVSSYFLGKLLSDLLP
                                                                                                                                                                              1 MSSSNVEVFIPVSQGNTNGFFATASNDLKAFTEGAVLSFHNICYRVKLKSGFLDCKKPVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE
                                                                                                                                                                                                                            KEILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN
                                                                                                                                                                                                                                                                                                     SGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ITVFKEISYTTSFCHOLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGIQNRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MIMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGQSVVSVATLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     601 NPCNYATCTGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKLLFLKKYS 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NPCNYATCTGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLITAYLKLLFLKKYS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Human cDNA differentially expressed in colon cancer #23 product
                                                                                                                 ö
the primers and probes ACC80607-ACC80671
                                                                                                               Indels
                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            differential expression; colon cancer; cancer; human
                                                                                                                 1;
                                                                            . 9
                                                                            B
                                                                          Score 3346; DB
Pred. No. 0;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ą
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ADA10917 standard; protein; 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11-OCT-2001; 2001US-00981353
                                                                          Query Match
Best Local Similarity 99.8%;
Matches 654; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (first entry)
      expression using
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US2002160382-A1.
                                        Sequence 655 A.A.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    06-NOV-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          31-OCT-2002.
                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ADA10917;
                                                                                                                                                                                                                                                                                                                                                                                                                         181
                                                                                                                                                                                                                                                                                                                                                                                                                                                           241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             601
                                                                                                                                                                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               421
                                                                                                                                                                                                                                                                                                         121
```

us-09-961-086-1.rag

```
ö
                                                                                                                                                                                                                                                                         The invention relates to a combination comprising cDNAs that are differentially expressed in colon disorder. The methods and compositions of the present invention are useful for diagnosing, treating, staging or monitoring treatment for colon cancer. They are also useful in high rhroughput methods for using cDNAs to detect differential expression of nucleic acids in a sample, screening molecules or compounds to identify a ligand which specifically binds a CDNA and using a protein to screen molecules or compounds to identify at least one ligand which specifically binds the protein. The present sequence represents the amino acid sequence of a human cDNA differentially expressed in colon cancer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OFIRGVSGGERKRISIGMELITDPSILFLDEPTTGLDSSTANAVLLLIKRMSKQGRTIIF 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SIHOPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DSTAVALNREEDFKATEIIEPSKODKPLIEKLABIYVNSSFYKETKAELHOLSGGEKKKK 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DSTAVALNREEDFKATEIIEPSKODKPLIEKLAEIYVNSSFYKETKAELHOLSGGEKKKK 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KEILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGT 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE 60
                                                                                                                                                                      combination comprising cDNAs that are differentially expressed in disorder, useful for diagnosing, treating, staging or monitoring
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  181 QPIRGVSGGERKRISIGMELITDPSILFLDEPTIGLDSSTANAVLLLKRMSKQGRTIIF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ITVFKEISYTTSFCHQLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ITVFKEISYTTSFCHQLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGIQNRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MIMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGQSVVSVATLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     481 MRMLPSIIFTCIVYFWLGLKPKADAFFVMMFTLMWVAYSASSMALAIAAGQSVVSVATLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MTICFVFMMIFSGLLVNLTTIASWLSWLQYFSIPRYGFTALQHNEFLGQNFCPGLNATGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MICEVERMIFSGLLVNLTITASWLSWLQYFSIPRYGFTALQENFELGQNFCPGLNATGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 6; Length 655;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 3346; Di
Pred. No. 0;
0; Mismatches
                                                                                                                                                                                                                                             Example 14; SEQ ID NO 35; 231pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              99.88;
98.86;
11-OCT-2000; 2000US-0239841P
                                                                                                                                                                                                             treatment for colon cancers.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Local Similarity 99.8
Matches 654; Conservative
                                                                                      Jones DA;
                                                                                                                       WPI; 2003-265756/26
                                 (LASE/) LASEK A W. (JONE/) JONES D A.
                                                                                                                                          N-PSDB; ADA10916
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 655 AA;
                                                                                                                                                                                            colon disorder,
                                                                                       Lasek AW,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             181
                                                                                                                                                                                                                                                                                                                                                                                                                                                             protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       \delta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     \delta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
```

ò

```
This invention relates to a novel agent which overcomes resistance of a cancer cell against an anti-cancer agent (AA), comprising as an active ingredient a steroid hormone, a compound having osestroganic effect, or a compound which exhibits antagonistic activity against the hormone, where the cancer cell expresses the BCRP (breast cancer resistance protein) gene. The agent of the invention may have cytostatic activity. The invention is useful for overcoming resistance of a cancer against an anti-cancer agent such as camptotheeins, mitoxantrone, 7-hydroxy staurosporine and adriamycin. The therapeutic effective anti-cancer agent is recovered, due to the use of the agent of the invention. Also the dosages of anti-cancer agent can be maintained easily, and adverse effects of cancer chemotherapy can be suppressed. The present sequence is that of the human BCRP protein which was used to develop the novel agent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KEILSNINGIMKRPGINAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Agent that overcomes resistance of cancer cell against anti-cancer agent, comprises a steroid hormone, or a compound which exhibits antagonistic activity against the hormone, with the cancer cell expressing BCRP gene.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9
                                                                                                                                                                                                                                                                 cancer cell; anti-cancer agent; steroid hormone; oestrogenic effect; BCRP; breast cancer resistance protein; cytostatic; camptothecins; mitoxantrone; 7-hydroxy staurosporine; adriamycin; cancer chemotherapy;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCKKPVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KBILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE
655
                          601 NPCNYATCTGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKLIFLKKYS 655
                                                                                                                                                                                                                                Human breast cancer resistance protein (BCRP) amino acid sequence.
 NPCNYATCTGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKLLFLKKYS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 3346; DB 7;
Pred. No. 0;
0; Mismatches 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Example 1; SEQ ID NO 4; 15pp; Japanese.
                                                                                                                            Ą
                                                                                                                            ADC54182 standard; protein; 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     99.88;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          23-AUG-2001; 2001JP-00252953.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       23-AUG-2001; 2001JP-00252953
                                                                                                                                                                                                  (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity 99.8
Matches 654, Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (GANK-) ZH GAN KENKYUKAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WPI; 2003-735321/70.
N-PSDB; ADCS4181.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               the invention
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 655 AA;
                                                                                                                                                                                                                                                                                                                                                                                                JP2003063989-A.
                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens.
                                                                                                                                                                                                  18-DEC-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                    05-MAR-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        121
                                                                                                                                                               ADC54182;
     601
                                                                                                                                                                                                                                                                                                                               human.
                                                                                          RESULT
                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
     δ
                            임
```

ö

ö

Gaps

.. 0

09 70 120 130 180 360 370 420 430 480 490 540 550 600

240 250 300 310

والمرادي والمراو

```
DSTAVALNREEDFKATEIIEPSKQDKPLIEKLABIYVNSSFYKETKAELHQLSGGEKKKK
                                                                                                                                                                                                                                              SINOPRYSIPKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING
                                                                                                                                                                                                                                                           TGIQNRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLLP
                                                                                                                                                                                                                                                                                                                                                                                                      TGIQNRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEYISGYYKVSSYFLGKLLSDLLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                            MRMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGQSVVSVATLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MTICFVFNMIPSGLLVNLTTIASWLSWLQYFSIPRYGFTALQHNEFLGQNFCPGLNATGN
                                                                                                                        KBILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN
                                                                                                                                                                                               QFIRGVSGGERKRISIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSKQGRTIIF
                                                                                                                                                                                                             QFIRGVSGGERKRISIGMELIIDPSILFLDEPTIGLDSSTANAVLLLLKRMSKQGRTIIF
                                                                                                                                                                                                                                                                                            DSTAVALNREEDFKATEIIEPSKODKPLIEKLAEIYVNSSFYKETKAELHOLSGGEKKKK
                                                                                                                                                                                                                                                                                                                                                                                                                                      MIMIPSIIFICIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGQSVVSVATLL
                                                                   ITVFKEISYTTSFCHOLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDS
                                                     MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE
                                                                                                    KEILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN
                                                                                                                                                    SGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGT
       Length 665
                               Indels
                               ;
;
        ŝ
        DB
                               0; Mismatches
       Score 3339;
Pred. No. 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ABB07273 standard; protein; 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      30-MAY-2001; 2001WO-US017459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            31-MAY-2000; 2000US-00584586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Human BCRP (huBCRP) sequence
        Query Match
Best Local Similarity 99.7%;
Matches 653; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WO200192877-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    26-MAR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               06-DEC-2001
                                                                                                     61
                                                                                                                                                                           131
                                                                                                                                                                                                                       191
                                                                                                                                                                                                                                               241
                                                                                                                                                                                                                                                                      251
                                                                                                                                                                                                                                                                                             301
                                                                                                                                                                                                                                                                                                                    311
                                                                                                                                                                                                                                                                                                                                                                   371
                                                                                                                                                                                                                                                                                                                                                                                           421
                                                                                                                                                                                                                                                                                                                                                                                                                  431
                                                                                                                                                                                                                                                                                                                                                                                                                                         481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ABB07273
                                                                               7
                                                                                                                            71
                                                                                                                                                    121
                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                                                                                            361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                              ద
                                                                                                                                                                                                                                                                                                                                                                                                                                         ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ઠે
                                                                                                                       g
                                                                                                                                                                      Б
                                                                                                                                                                                           8
                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                ద
                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                         8
                                                         ઠે
                                                                        d
                                                                                                   ઠે
                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     The invention comprises a mutant human BCRP protein, having a deletion, replacement or addition of at least one amino acid in the fifth membrane penetrating region of the wild-type BCRP protein. The mutant BCRP protein can be used for the treatment of cancer. The present amino acid sequence represents a human BCRP-related protein
                                                                                                                                                                                                                                                                                   540
                                                                                                                                                                                                                                                                                                           600
                                                                                                                                                                                                                                                                                                                                 600
                                                                                                                                                                                                                                     480
                                                                                                                                                                                                                                                             540
                                           181 QFIRGVSGGERKRISIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSKQGRIIIF 240
                                                                                  241 SIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING 300
                                                                                                                  DSTAVALNREEDPKATEIIEPSKQDKPLIEKLAEIYVNSSFYKETKAELHQLSGGEKKKK 360
                                                                                                                                          360
                                                                                                                                                                 420
                                                                                                                                                                                      420
                                                                                                                                                                                                              480
                                                                    SIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING 300
SGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGT 180
                                                                                                                                  DSTAVALNREEDFKATEIIEPSKQDKPLIEKLAEIYVNSSFYKGTKAELHQLSGGEKKKK
                                                                                                                                                              MRMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMMVAXSASSMALAIAAGQSVVSVATLL
                        QFIRGVSGGERKRISIGMELITDPSILFLDEPTIGLDSSTANAVLLLLKRMSKQGRTIIF
                                                                                                                                                                                                                TGIONRAGVLFFLTTNOCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLLP
                                                                                                                                                                                                                            TGIQNRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEYISGYYKVSSYFLGKLLSDLLP
                                                                                                                                                                                                                                                            MIMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGQSVVSVATLL
                                                                                                                                                                                                                                                                                                          MTICEVEMMIFSGLLVNLTTIASWLQYFSIPRYGFTALQHNEFLQQNFCPGLNATGN
                                                                                                                                                                                                                                                                                                                                  541 MTICEVERMIFSGLLVNLTTIASWLSWLQYFSIPRYGFTALQHNEFLGQNFCPGLNATGN
                                                                                                                                                                                                                                                                                                                                                          655
                                                                                                                                                                                                                                                                                                                                                                                 655
                                                                                                                                                                                                                                                                                                                                                         NPCNYATCTGBEYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKLLFLKKYS
                                                                                                                                                                                                                                                                                                                                                                        BCRP-related protein; membrane penetrating region; cancer.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mutant BCRP protein useful for treatment of cancer.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Example 3; Page 12-13; 15pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                           Ą
                                                                                                                                                                                                                                                                                                                                                                                                                                           protein; 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Human BCRP-related protein 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           31-AUG-2000; 2000JP-00263742.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   31-AUG-2000; 2000JP-00263742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (GANK-) ZH GAN KENKYUKAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2002-324198/36.
                                                                                                                                                                                                                                                                                                                                                                                                                                             AAO14783 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N-PSDB; AAL42414.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Séquence 665 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JP2002065277-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          28-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              05-MAR-2002
                                                                                                                   301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AA014783;
                                                                                                                                                                                                                                                             481
                                                                                                                                                                                                                                                                                    481
                                                                                                                                                                                                                                                                                                            541
                                                                                                                                                                                                                                                                                                                                                           601
                        181
                                                                     241
                                                                                                                                          301
                                                                                                                                                                                                                421
                                                                                                                                                                                                                                       421
                                                                                                                                                                                                                                                                                                                                                                                 601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Human;
                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                           ઠ
                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                       ద
                                                                                                                                     g
                                                                                                                                                                                  g
                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                           ò
                        ठे
                                        셤
                                                                   δ
                                                                                                           õ
                                                                                                                                                                 ઠે
                                                                                                                                                                                                         જે
                                                                                                                                                                                                                                                            ò
```

```
610
                                                                                                                                                                                                                                                                                                                                                                                                    Stem cell; ATP transport protein; ATP-binding cassette; antiparkinsonian; hepatotropic; meurodegenerative; cytostatic; antianemic; muscular; BCRP; cardiant; gene therapy.
601 NPCNYATCTGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKLLFLKKYS 655
                                                                                                        665
```

009

541 MTICFVFMMIFSGLLVNLTTIASWLSWLQYFSIPRYGFTALQHNEFLGQNFCPGLNATGN

Robert Land

```
à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    원
                                                          쉱
                         ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SGYVVVQDDVVMGTLTVKENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGT 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SIHOPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         241 SIHQPRYSIFYCLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DSTAVALNREEDFKATEIIEPSKQDKPLIEKLAEIYVNSSFYKETKAELHQLSGGEKKKK 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KEILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGT 180
                                                                                                                                      Identifying a stem cell, for treating e.g., muscular dystrophy, wycoardial infarction, Parkinson's disease, or neurodegenerative disorders, comprises detecting the expression of an ATP transport protein (BCRP) by a cell.
                                                                                                                                                                                                                                               The invention provides a method of identifying and/or isolating a stem cell that involves detecting the expression of an ATP transport protein containing a conserved ATP-binding cassette (BCRP) by a cell in a sample comprising stem cells. The isolated stem cells may be used in the treatment of diseases auch as muscular dystrophy, degenerative liver disorder. Wyocardial infarction, Parkinson's disease, degenerative liver haematopoietic cells an be used in bone marrow transplants (e.g., for treatment of leukemia) and for tissue regeneration or replacement. Hreatment of leukemia) and for tissue the transplants (e.g., for diseases such as sickle cell anemia and thalassemia. The stem cells can also be used as cell targets in gene therapy protocols. The present sequence represents the human BCRP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DSTAVALNREEDFKATBIIEPSKQDKPLIEKLABIYVNSSFYKETKAELHQLSGGEKKKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MICEVEWMIESGLLVNLTIASWLSWLQYFSIPRYGFTALQHNEFLGONFCEGLNATGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MSSSNVEVFIPUSQGNTNGFPATASNDLKAFTEGAVLSFENICYRVKLKSGFLPCRKPVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ITVFKEISYTTSFCHQLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ITVFKEISYTTSFCHQLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGIQNRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MIMLPSIIFICIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGQSVVSVATLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OFIRGVSGGERKRISIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSKQGRIIIF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 5; Length 655;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            . 99.6%; Score 3338; D 99.7%; Pred. No. 0; rative 0; Mismatches
                             ST JUDE CHILDREN'S RES HOSPITAL.
                                                                                                                                                                                                                       Example 1; Page 86-87; 87pp; English
29-MAY-2001; 2001US-00866866.
                                                               Schuetz J;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              653; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                               WPI; 2002-114368
N-PSDB; ABA94383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 655 AA;
                                                                Sorrentino B,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Si
Matches 653;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181
                                (same-)
```

ò 셤 ઠે g ઠે g

셤 ò

셤 à g

 δ

g ò Ob ò 셤 ö

ठ

```
The present sequence is that of an ATP-binding cassette protein (ABC brotein) designated MXR1 that confers mitoxantrone resistance to S1-M1-80 burnan colon carcinoma cells. Nuclet according the ABC protein may be used to produce the protein according to standard recombinant DNA methodologies. The expressed proteins may be used to confer resistance to eyrotoxins such as mitoxantrone and/or daunomycin to the host cells in which they are expressed. In disease conditions such as carcinoma of the colon, breast and gastrointestinal tract, the ABC protein may be nucleic acids and proteins may be used to produce host cell models of resistant cells which can be used to screen for candidate agents that inhibit the expression and/or activity of the ABC protein. These agents may be used to down regulate ABC protein in carcinoma cells and sensitize them to cytotoxic therapeutic agents
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Adenosine triphosphate (ATP)-binding cassette proteins and their nucleic acids, useful for identifying agents that may be used to treat colonic carcinomas resistant to cytotoxic therapeutic agents.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 MSSSNVEVFIPVSQGNTNGFPATVSNDLXAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KEILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRVIQELGLDKVADSKVGT
NPCNYATCTGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKLLFLKKYS
                         .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 655;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                         protein; ABC protein; MXR1; human; colon carcinoma; therapy.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          99.4%; Score 3331; DB 3;
llarity 99.4%; Pred. No. 0;
Conservative 1; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Fojo AT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Claim 1(ii); Page 46; 49pp; English.
                                                                                                                                                                                     Ä
                                                                                                                                                                                                                                                                                                                                               ATP-binding cassette protein MXR1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Bates SE,
                                                                                                                                                                                     AAY95365 standard; protein; 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (USSH ) US DEPT HEALTH & HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   99WO-US028107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      98US-0110473P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Allikmets R,
                                                                                                                                                                                                                                                                                                                                                                                                                          cytotoxin resistance;
                                                                                                                                                                                                                                                                                                                                                                                                 cassette
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WPI; 2000-442385/38.
N-PSDB; AAA27938.
                                                                                                                                                                                                                                                                                          (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local Similarity
nes 651; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 655 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WO200036101-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         30-NOV-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 24-NOV-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              22-JUN-2000.
                                                                                                                                                                                                                                                                                             25-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                              ATP-binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                       AAY95365;
     601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Dean
                                                                                                                          RESULT 11
AAY95365
TD AAY9
```

99US-0166767P

22-NOV-1999;

us-09-961-086-1.rag

```
240
                                                                                            300
                                                                                                                  360
                                                                                                                                       360
                                                                                                                                                            420
                                                                                                                                                                                420
                                240
                                                                                                                                                                                                    480
                                                                                                                                                                                                                        480
                                                                                                                                                                                                                                             540
                                                                                                                                                                                                                                                                   540
                                                                                                                                                                                                                                                                                                           600
                                                                         300
                                                                                                                                                                                                                                                                                       MIICEVEMMIRSGLLVNLTIIASWLSWLOYFSIPRYGFIALQHNEFLGONFCPGLNATGN 600
                                              241 SIHÓPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING
                                                                                                                                 DSTAVALNKEEDFKATEIIEPSKODKPLIEKLAEIYVNSSFYKETKAELHQLSGGKKKK
                                                                                                                                                                        MRMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGQSVVSVATLL
                                                                                                                                                                                                                                                                                                     OFIRGVSGGERKRISIGMELITOPSILFLDEPTIGLDSSTANAVLLLLKRMSKQGRIIIF
                                                                         SIHOPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING
                                                                                                                  DSTAVALNREEDFKATEI IEPSKQDKPLIEKLAEI YVNSSFYKETKAELHQLSGGEKKKK
                                                                                                                                                            ITVFKEISYTTSFCHOLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDS
                                                                                                                                                                                                    TGIQNRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLLP
                                                                                                                                                                                                                        TGIQNRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLLP
                                                                                                                                                                                                                                              MIMLPSIIFICIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGQSVVSVATLL
                                                                                                                                                                                                                                                                                                                                NPCNYATCTGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKLLFLKKYS 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATP-binding cassette transporter protein-inhibiting peptide; ABC; transmembrane domain; cancer; tumour; HIV; AIDS; BCRP/MXR/ABCP; acquired immunodeficiency syndrome; human immunodeficiency syndrome
                                                                                                                                                                                                                                                                                                                                           /427. 450
/label= Transmembrane_domain_2
/label= Transmembrane_domain_3
504. 527
/label= Transmembrane_domain_4
539. 558
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Transmembrane_domain_5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           629. .650
/label= Transmembrane_domain_6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Transmembrane_domain_1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                           Ź
                                                                                                                                                                                                                                                                                                                                                                                                         AAU04348 standard; protein; 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    17-NOV-2000; 2000WO-US031817
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        99US-0166382P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Human BCRP/MXR/ABCP protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      398. .420
/label= Tr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      539. .558
/label= Tr
                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WO200136477-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        13-NOV-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                   23-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                25-MAY-2001
                                                      181
                                                                                                                                                                                                                          421
                                                                                                                                                                                                                                                                    481
                                                                                                                                                                                                                                                                                                              541
                                                                                                                                                                                                                                                                                                                                 601
                                                                                                                                                                                                                                                                                                                                                     601
                                                                                                                                                                                                                                                                                                                                                                                                                              AAU04348;
                                181
                                                                           241
                                                                                                                   301
                                                                                                                                       301
                                                                                                                                                             361
                                                                                                                                                                                  361
                                                                                                                                                                                                       421
                                                                                                                                                                                                                                               481
                                                                                                                                                                                                                                                                                         541
             121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Omor
                                                                                                                                                                                                                                                                                                                                                                                     RESULT 12
                                                                                                                                                                                                                                                                                                                                                                                                AAU04348
                                                                                                                                                                                                                                                                                                                                                                                                             ď
                                                                                            셤
                                                                                                                                       셤
                                                                                                                                                                                g
                                                                                                                                                                                                      ઠે
                                                                                                                                                                                                                        원
                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                   요
                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                   ઠ
                                                                                                                                                                                                                                                                                                                                                    g
                                 à
                                                                          ઠે
                                                                                                                   δ
                                                                                                                                                             ઠ
```

```
The sequence represents human BCRP/MXR/ABCP protein, an ATP-binding caseste (ABC) transporter protein. Peptides derived from its transmembrane domains are used as ATP-binding casestete transporter. CC transmembrane domains are used as ATP-binding casestete transporter protein-inhibiting peptides. The peptides have a first end and a second end, where at the first end there is a group that is negatively charged under physiological conditions and is at least 16 neutrally charged under physiological conditions and is at least 70% identical to a transmembrane domain of an ABC transporter. The peptides are used for inhibiting the biological activity, in particular ion flux or translocation, cytocoxin efflux or translocation, phosphorylation, production of particular components such as soluble inositol phosphates, tumour growth, chemotraxis, mitogenic response, cell growth activation or secretion of a target ATP-binding cassette (ABC) transporter. The peptides are useful to sensitize cancer cells to standard chemotherapeutics which Amontherapeutics are then administered to kill the cancer cells. Transmembrane analogues of ABC transporter protein are inhibitor. The ablity of HIV-1, who are taking a protease conhibitor in the affected cell. This reduces the amount of protease inhibitor in the affected cell. This reduces the amount of protease inhibitor in the administered to the patient to achieve a virus-inhibiting dose inhibitory which are the patient to achieve a virus-inhibiting dose
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               420
                                                                                                                             New ATP-binding cassette transporter-inhibiting peptides derived from transmembrane domain of the transporter, useful for inhibiting biological activity of the transporter and sensitizing cancer cells to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MSSSNVEVFIPVSQGNTNGFPATVSNDLKAFTEGAVLSFHNICYRVKLKSGFLFCRKPVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KEILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHEKNERINRV1QELGLDKVADSKVGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DSTAVALNREEDFKATELLEPSKODKPLLEKLAELYVNSSFYKETKAELHOLSGGEKKKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ITVFKEISYTTSFCHQLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KEILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          QFIRGVSGGERKRISIGMELITDPSILFLDEPTTGLDSSTANAVLLLLKRMSKQGRIIIF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SIHQPRYSIFKLFDSLTLLASGRIMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 331; DB 4; Length 655;
Pred. No. 0;
1; Mismatches 3; Indels C
                                                             ΰ
                                                               нгусупа
                                                               Gottesman MM,
                             (USSH ) US DEPT HEALTH & HUMAN SERVICES.
                                                                                                                                                                                                                    Disclosure, Fig 2, 89pp, English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    99.4%;
                                                               Ω,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches 651; Conservative
                                                               Michejda
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 in the infected cells
                                                                                                WPI; 2001-381224/40.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                     chemotherapeutics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Seguence 655 AA;
                                                                 Tarasova NI,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Н
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      н
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local
ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  심
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        \delta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               요
```

ö

Gaps

. 0

Indels

٠. ش

1; Mismatches

9 9 120 120 180 240 240 300 300 360 360 420

```
QFIRGVSGGERKRISIGMELITDPSILFLDEPTIGLDSSTANAVLLLLKRMSKQGRIIIF
                                                                                                                                                                                                                                                                                                            241 SIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAINNPADFFLDIING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               481 MRMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGOSVVSVATLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               541 MTICFVFMMIFSGLLVNLTTIASWLQYFSIPRYGFTALQHNEFLGQNFCPGLNATGN
                                                                                          KEILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN
                                                                                                                                                                                                                                                     OPIRGVSGGERKRISIGMELITDPSILSLDEPTTGLDSSTANAVLLLLKRMSKQGRTIIF
                                                                                                                                                                                                                                                                                                                                                                                     301 DSTAVALNREEDFKATELIEPSKODKPLIEKLAEIYVNSSFYKETKAELHQLSGGEKKKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                361 ITVFKEISYTTSFCHQLRWVSKRSFKNLLCNPQASIAQIIVTVVLGLVIGAIYFGLKNDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 MSSSNVEVFIPVSQGNTNGFPATVSNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE
                                                                                                                                                         SGYVVQDDVVMGTLTVRENLQFSAALRLATTMTNHBKNERINRVIQELGLDKVADSKVGT
                                                                                                                                                                                                                                                                                       SIHOPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING
                                                                                                                                                                                                                                                                                                                                                      DSTAVALNREEDFKATELLEPSKODKPLIEKLAELYVNSSFYKETKAELHQLSGGEKKKK
                                                                                                                                                                                                                                                                                                                                                                                                                   ITVFKEISYTTSFCHQLRWYSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGIQNRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MTMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGQSVVSVATLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  541 MTICFVFMMIFSGLLVNLTTIASWLSWLQYFSIPRYGFTÄLQHNEFLGQNFCPGLNÄTGN
                          MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NPCNYATCTGEEYLVKQGIDLSPWGLWROHVALACMIVIFLTIAYLKLLFLKKYS 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WO200192877-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    26-MAR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 06-DEC-2001
651;
                                                                                                                                                                                                                                                                                                                                                        301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    601
                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                                                                                                                                                          361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ABB07270;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    601
                                 M
                                                                                                                                                              121
                                                                                                                                                                                           121
                                                                                                                                                                                                                                                                                           241
                                                                                             61
                                                                                                                             61
                                                                                                                                                                                                                            181
 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ठे
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                        셤
                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                           8
                                                         셤
                                                                                            ò
                                                                                                                           원
                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The present invention describes a method (MI) for modulating the activity of ATP-binding cassette (ABC) transporters by influencing the dimerisation of the nuclectide binding domains comprises using: (a) a polypeptide (polyp) consisting of 6.50 amino acids comprising the D loop sequence of an ABC transporter; (a) a poptic consisting of the D loop sequence of an ABC transporter; (a) a poptide mimetic or antisense peptide of (a) or (b). ABC transporters have antibacterial, fungicide and procozoacide activities. (MI) is useful for selectively modulating the activity of ABC transporters belonging to selectively modulating the activity of ABC transporters belonging to protozoal ABC transporters? Pelycoproteins. Bacterial, fungal or protozoal ABC transporters are involved in the infection of a mammal or in the induction of resistance to antibiotics or drugs in a mammal. (MI) is useful for preventing, treating or alleviating diseases associated with functionality of an ABC transporter. ABPS2092 to ABPS2140 represent
                                                                                                                                                              900
                                                                  540
                                                                                                 540
                                                                                                                                600
   480
                                 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Modulating activity of ATP-binding cassette (ABC) transporters by influencing dimerization of nucleotide binding domains through use of D loop sequence of an ABC transporter, or its antisense peptide or peptide mimetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                           D loop;
                           421 TGIQNRAGVLFFLTINQCFSSVSAVELFVVEXKLFIHEYISGYYRVSSYFLGKLLSDLLP
                                                                                                                                                     481 MEMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGQSVVSVATLL
                                                                                                                                MTICFVFMMIFSGLLVNLTTIASWLSWLQYFSIPRYGFTALQHNEFLGQNFCPGLNATGN
   TGI QNRAGVLFFLTINQCFSSVSAVELFVVEKKLFIHEY ISGYYRVSSYFLGKLLSDLLP
                                                                  MIMLPSIIFTCIVYFMLGLKPKADAFFVMMFTLMWVAYSASSMALAIAAGQSVVSVATLL
                                                                                                                                                                                                 655
                                                                                                                                                                                                                  ATP-binding cassette transporter; ABC transporter; modulation; D lo cancer; bacterial infection; fungal infection; protozoal infection; antibacterial; fungicide; protozoacide.
                                                                                                                                                                                               NPCNYATCIGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKLLFLKKYS
                                                                                                                                                                                                                                                                                                                                                                                                            ABC transporter ABCG2 protein SEQ ID NO:79
                                                                                                                                                                                                                                                                                                                  ABP52127 standard; protein; 655 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Disclosure, Fig 3; 290pp, English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           21-DEC-2000; 2000EP-00870316.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           21-DEC-2000; 2000EP-00870316.
                                                                                                                                                                                                                                                                                                                                                                              (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WPI; 2002-550404/59.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (UYGE-) UNIV GENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 655 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                 sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EP1217066-A1
                                                                                                                                                                                                                                                                                                                                                                                10-OCT-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              26-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        nvention.
                                                                                                                                    541
                                                                                                                                                                   541
                                                                                                                                                                                                  601
                                                                                                                                                                                                                                                                                                                                                 ABP52127;
      421
                                                                     481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ношо
                                                                                                                                                                                                                                                                               RESULT 13
ABP52127
                                                                                                                                                                                                                                                                                                                                                                                                                 Ношо
                                                                                                                                                                                                                                                                                                                  d
                                                                                                                                à
                                                                                                                                                                 셤
                                                                                                                                                                                               ò
                                                                                                                                                                                                                              셤
      ઠ
                                 g
                                                                     ò
```

540

540 600 009

655

420 480 480

```
stem cell; ATP transport protein; ATP-binding cassette; antiparkinsonian;
hepatotropic; neurodegenerative; cytostatic; antianemic; muscular; BCRP;
cardiant; gene therapy.
                                                            Human BCRP (huBCRP) amino acid sequence.
                                                                                                                                                                                                                                       (SJUD-) ST JUDE CHILDREN'S RES HOSPITAL
A
 ABB07270 standard; protein; 655
                                                                                                                                                                                       30-MAY-2001; 2001WO-US017459.
                                                                                                                                                                                                         31-MAY-2000; 2000US-00584586.
29-MAY-2001; 2001US-00866866.
                                         (first entry)
```

5; Length 655,

DB

3331; No. 0;

Score Pred.

99.4%;

Query Match Best Local Similarity

\$44.

```
SIHQPRYSIPKLFDSLTLLASGRLMFHGPAQEALGYPESAGYHCEAYNNPADFFLDIING 300
                                                                                                   Identifying a stem cell, for treating e.g., muscular dystrophy, myocardial infarction, Parkinson's disease, or neurodegenerative disorders, comprises detecting the expression of an ATP transport protein
                                                                                                                                                                                                                    The invention provides a method of identifying and/or isolating a stem cell that involves detecting the expression of an ATP transport protein containing a conserved ATP-binding cassette (BCRP) by a cell in a sample comprising stem cells. The isolated stem cells may be used in the treatment of diseases such as muscular dystrophy, degenerative liver disorder; myocardial infarction, Parkinson's disease, degenerative liver Haematopoietic cells in and for tissue regeneration or replacement. Haematopoietic cells an be used in bone marrow transplants (e.g., for treatment of leukemia) and for ex vivo gene therapy for treating blood diseases such as sickle cell anemia and thalassemia. The stem cells can also be used as cell targets in gene therapy protocols. The present sequence represents the amino acid sequence of human BCRP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KEILSNINGIMKPGLNAILGPIGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KEILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SIHQPRYSIFKLFDSLTLLASGRLMFHGPAQEALGYFESAGYHCEAYNNPADFFLDIING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DSTAVALNREEDFKATEIIEPSKODKPLIEKLAEIYVNSSFYKETKAELHOLSGGEKKKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ITVFKEISYTTSFCHQLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGIQNRAGVLFFLTTNQCFSSVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDLLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OFIRGVSGGERKRISIGMELITOPSILFLDEPTTGLDSSTANAVLLLLKRMSKQGRTIIF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DSTAVALNREEDFKATELLEPSKODKPLIEKLAELYVNSSFYKETKAELHOLSGGEKKKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ITVFKEISYTTSFCHOLRWVSKRSFKNLLGNPQASIAQIIVTVVLGLVIGAIYFGLKNDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MIML PSI I FTCI VY FMLGLKPKADA FFVMM FTLMMVAY SASSMALAI AAGOSVVSVATLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 MSSSNVEVFIPVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SGYVVQDDVVMGTLTVRENLQPSAALRLATTMTNHEKNERINRVIQBLGLDKVADSKVGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 3331; DB Pred. No. 0; 1; Mismatches
                                                                                                                                                                                               Example; Page 78-80; 87pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     99.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                   2002-114368/15.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
Matches 651; Conserv
                                                                                                                                                              (BCRP) by a cell.
                                                                      N-PSDB; ABA94369.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 655 AA;
                 'n
                   Sorrentino
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              н
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181
                                                   WPI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             쉱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             <u>유</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 \dot{\delta}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
```

ö

Gaps

;

m m

5; Length 655; Indels 9 9 300 360 360 420 420 480 480 540 540 900 600

240 240

120 180 180

```
The invention relates to the use of an acridine derivative, or its salt or solvate, for inhibiting a mitoxantrone resistance (WAR) transporter in a cell over-expressing a MKB gene but not over-expressing a P-glycoprocein (Pgp) gene, by contacting with the cell. Also included are assaying the compoulation of the functional effect of a test compound on the cell by the acridine derivative (comprising contacting the test compound with the cells in the presence and absence of the acridine derivative and cells in the presence and absence of the acridine derivative and comparising contacting the treatment of cancer that conver-expresses the (MKR) gene but not over-expresses the (Pgp) gene (comprising co-administering a chemotherapeutic recognized by the MKR transporter and the acridine derivative. The method is used for cancer, colon cancer, breast cancer, prostate cancer, acute lymphocytic concer, colon cancer, breast cancer, prostate cancer, acute lymphocytic cancer, colon cancer, breast cancer, prostate cancer, acute lymphocytic curvative is a potent multispecific antagonist capable of inhibiting or reversing both Pgp-mediated and WXR mediate multidrug resistance (MDR) coversing both Pgp-mediated and WXR mediate multidrug resistance (MDR)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KEILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     New use of acridine derivative for inhibiting mitoxantrone resistance transporter in treatment of e.g. cancer, acute lymphocytic leukemia and non-Hodgkin's lymphoma.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MSSSNVEVFI PVSQGNTNGFPATASNDLKAFTEGAVLSFHNICYRVKLKSGFLPCRKPVE
                     655
                                                                                                                                                                                                                                                       Human; cytostatic; acridine derivative; MXR; Pgp; cancer; hicksantrone resistance transporter; p-glycoprotein; lung cancer; colon cancer; breast cancer; prostate cancer; ovarian cancer; acute, lymphocytic leukaemia; non-Hodgkin's lymphoma;
..
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6; Length 655;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3,
                                                                                                                                                                                                                      Human mitoxantrone resistance (MXR) transporter.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 3331; DB
Pred. No. 0;
1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (USSH ) US DEPT HEALTH & HUMAN SERVICES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Disclosure; Col 29-34; 27pp; English.
                                                                                                              A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ٦,
                                                                                                               655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity 99.4%;
Matches 651; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               22-JAN-2001; 2001US-00767594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20-JAN-2000; 2000US-0177410P
                                                                                                            standard; protein;
                                                                                                                                                                                     (first entry)
                                                                                                                                                                                                                                                                                                                                  multidrug resistance; MDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WPI; 2003-553619/52.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Bates S, Robey R;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 655 AA;
                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                       US6521635-B1
                                                                                                                                                                                     23-SEP-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61
                                                                                                              ABU63376
                                                                                                                                                  ABU63376;
                                                                               RESULT 15
                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                         셤
```

9 9

481

ద ઠ 셤

541

541 MTICFVFMMIFSGLLVNLTTIASWLSWLQYFSIPRYGFTALQHNEFLGQNFCPGLNATGN

NPCNYATCTGEEYLVKQGIDLSPWGLWKNHVALACMIVIFLTIAYLKLIFLKKYS 655

601

MTICEVERMIESGLLVNLTTIASWLSWLOYFSIERYGFTALQHNEFLGQNFCPGLNATGN

N 120	180 180		IF 240	IF 240	NG 300	NG 300	KK 360	KK 360	DS 420	DS 420	LP 480	LP 480	LL 540	Li 540	GN 600	GN 600	ις.	ហ្
PANFK	ADSKVC	ADSP.	KOGRTII	KOGRTI	FFLDIII	FFLDIII	SGGEKK	SGGEKK	YFGLKNDS	GALYFGLKNDS	LGKLLSDLL	KLLSDL	VVSVAT	WSVAT	CPGLNATGN	CPGLNATGN	KKYS 65	KYS 65!
LINGAP	OBLGLDKVADSKVGT	e Licentra	TANAVLLLLKRMS	LLKRMS	CEAYNNPADFFLDIING	FESAGYHCEAYNNPADFFLDIING	AELHOL	AELHOL	LVIGAIY	LVIGAL	SYF	SSYFLG	IAAGOS	IAAGOS	LGONFO	LGONFO	KLLFLK	Firiavíkilelikky
SLSGDV	INRVIO	TNENTE	ANAVLL	ANAVLL	GYHCEA	GYHCEA	FYKETK	FYKETK	IVTVVLGLVI	ivrvvigivi	SGYYRVS	SGYYRV	SSMALA	SSMALA	LOHNE	LOHNE	FLTIAY	triavi
ARKDPS	HEKNER 	HEKNER	GLDSST	GLDSST	GYFESAGYH	GYFESA	IYVNSS	IYVNS	Ö-	SIAQII	FIHEY	FIHEY	MVAYS?	MVAYS	PRYGETA	PRYGFT	CMIVI	ACMIVI
LLDVLA	ATTMTN	N.I.W.I.W	FLDEPTT	LDEPT	GPAQEALGY	PAQEAL	IEKLAE	IEKLAE	SFKNLLGNPQASIA	TGNPOZ	WEKKL	vveka	MMETLY	MMFTL	COYFSI	COYFSII	GLWKNHVALA	KNHVAL
KEILSNINGIMKPGLNAILGPTGGGKSSLLDVLAARKDPSGLSGDVLINGAPRPANFKCN	SGYVVODDVVMGTLTVRENLQFSAALRLATTWTNHEKNERINRVI	SGYVVQDDVVMGTLTVKENLQFSAALKLATTMINHEKNEKLINKVLEELGLDKVADSKVG.	TDPSILE	OFIRĠVSGGBRKRTSIGMELITDPSILSLDEPTTGLDSSTANAVLLLLKRMSKQGRTIIF	GRLMFHO	SIHOPRYSIFKLFDSLTLLASGRIMFHGPAQEALGY	SKODKPLIEKLABIYVNSSFYKETKAELHQLSGGEKKKK	DSTAVALNREEDFKATELLEPSKODKPLIEKLAELYVNSSFYKETKAELHOLSGGEKKKK	CRSFKNI	CHOLRWVSKRSFKNLLGNPQASIAQI	SVSAVELFVVE	SVSAVELFVVEKKLFIHEYISGYYRVSSYFLGKLLSDILP	GLKPKADAFFVMMFTLMMVAYSASSMALAIAAGSSVVSVATLL	CIVYFMLGLKPKADAFFVMMFTLMMVAYSASSMALAIAAGQSVVSVATLL	MTICEVENMIFSGLLVNLTIIASMLSWLQYFSIPRYGFTALQHNEFLGQNF	CFVFMMIFSGLLVNLTIASWLSWLQYFSIPRYGFTALQHNEFLGQNF	SPWGLW	CTGEEYLVKQGIDLSPWGLWKNHVALACMIVI
ALLGET	RENLOE	KENTO	SIGMELL	GMELIT	TLLAS	LTLLAS	TRITEP	TELLEP	QLRWVSKR	QLRWVS:	CO —	NOCESS	MLGLKP	MLGLKP	VNLTTI	VNLTT	CTGEEYLVKQGIDLSPW	KQGIDL
MKPGL	MGTLT.	MGTLT	SRKRTS:	SRKRTS:	FKLFDSL	FKLFDS	EEDFKA'	EEDFKA'	SYTTSFCH(TTSFCH	GVLFFLTTNOCF	TGIQNRAGVLFFLTTNQCFS	TCIVYFML	–F-t	IFSGLL	IFSGLL	GEEYLV	GEEYLV
SNING	70000V	vvaagv	OFIRGVSGGERKRT	kĠVSGG	SIHOPRYSI	DPRYSI	STAVALNE	AVALINE	ITVEKEISY	TVFKEISYTTSF	ONRA	ONRAGV	MIMLESIIF	MRMLPSIIF	CFVFMM	CFVFMM	NPCNYATCT	CNYATCT
							Ω-				IGI				_	Ϋ́		-8 -0
61	121	121	181	181	241	241	301	301	361	361	421	421	481	481	541	541	601	601
•		0	_	0		•		•		0		0	5.	۵	>-	Ω	>-	Δ
엄	ð i	ឧ	ò	đ	ò	g	δ	g	ò	엄	ò	엄	δ	g	ઠે	d	ò	d G

Search completed: March 23, 2004, 18:29:34 Job time : 64 secs